By-paths of Bible Knowledge

VI.

EGYPT AND SYRIA

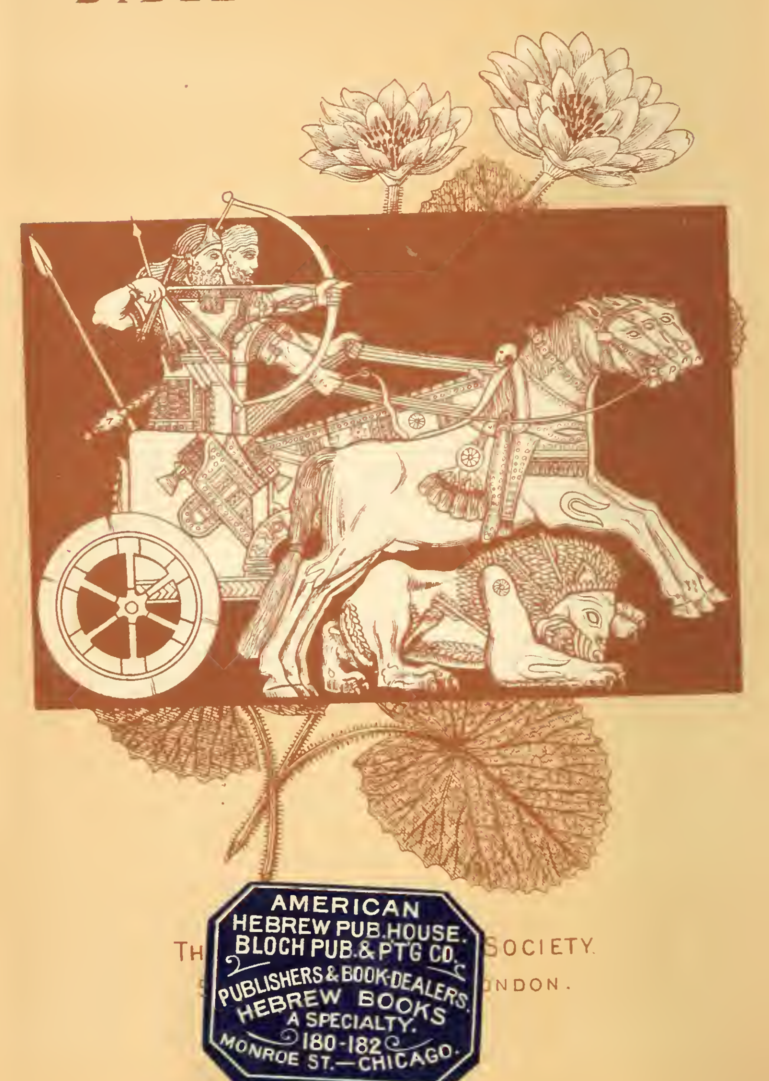
THEIR PHYSICAL FEATURES IN RELATION TO BIBLE HISTORY



THE SKULL HILL AT JERUSALEM, THE SUPPOSED PLACE OF THE CRUCIFIXION.

SIR J. W. DAWSON, F.R.S.

BY-PATHS
OF
BIBLE KNOWLEDGE.



	s	d.
CLEOPATRA'S NEEDLE. With an Exposition of the Hieroglyphics	2	6
FRESH LIGHT FROM THE ANCIENT MONUMENTS. By A. H. SAYCE, LL.D.	3	0
RECENT DISCOVERIES ON THE TEMPLE HILL AT JERUSALEM. By the Rev. J. KING, M.A. ...	2	6
BABYLONIAN LIFE & HISTORY. By E. A. WALLIS BUDGE, M.A.	3	0
GALILEE IN THE TIME OF CHRIST. By SELAH MERRILL, D.D.	2	6
EGYPT & SYRIA. Their Physical Features in Relation to Bible History. By Sir J. W. DAWSON, F.R.S.	3	0
ASSYRIA: ITS PRINCES, PRIESTS, AND PEOPLE. By A. H. SAYCE, LL.D.	3	0
THE DWELLERS ON THE NILE. By E. A. WALLIS BUDGE, M.A.	3	0
THE DISEASES OF THE BIBLE. By Sir J. RISDON BENNETT, M.D., F.R.S., Ex-President of the Royal College of Physicians ...	2	6

EGYPT AND SYRIA.

Oxford
HORACE HART, PRINTER TO THE UNIVERSITY





Pyramid of Kaphra (Cephren) and ancient Eroded Cliff of Pyramid Plateau at Gizeh.
(From a Photograph.)

By-Paths of Bible Knowledge.
VI.

EGYPT AND SYRIA

THEIR PHYSICAL FEATURES

IN RELATION TO

BIBLE HISTORY.

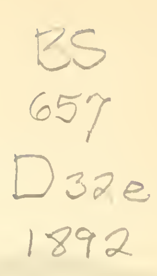
BY

SIR J. WILLIAM DAWSON, C.M.G., LL.D., F.R.S.

Author of "ACADIAN GEOLOGY;"
"THE CHAIN OF LIFE IN GEOLOGICAL TIME;"
"THE STORY OF THE EARTH AND MAN;"
"FOSSIL MEN," ETC.

THIRD EDITION

THE RELIGIOUS TRACT SOCIETY,
56 PATERNOSTER ROW, AND 65 ST. PAUL'S CHURCHYARD.
1892



PREFACE TO THE SECOND EDITION.

THIS work contains the results of observations made in the winter of 1883–4, during which the writer devoted some attention to the less known features of the geology of portions of Egypt and Palestine, with especial reference to the bearing of facts of this kind on Bible History. He believes that his long and somewhat varied experience as a geological observer will enable him to throw additional light on some of the more difficult questions of Biblical geography, and to present some useful illustrations of the Sacred Scriptures.

Rough notes of some of these observations have appeared in the *Leisure Hour*, but the present work contains a much larger amount of matter, with additional illustrations.

In the present edition, some new facts bearing on the questions discussed have been introduced, and additional explanations have been given in cases where the conclusions of the author have been disputed or misunderstood.

June, 1887.



CONTENTS.



LIST OF ILLUSTRATIONS.

CHAPTER I.

INTRODUCTION. THE DELTA.

IN crossing the Mediterranean from Europe to the land of the Pharaohs, the traveller passes from countries historically new to one that is very old. He passes also from a modern zoological and botanical district to one that is much more ancient; but, on the other hand, he enters a country that is geologically more recent than the greater part of Europe. Nothing perhaps more forcibly illustrates the various ways in which things may be new or old.

The greater part of the Nile valley, and the whole of the Delta, are made up of those formations that belong to the Tertiary or newer period of the earth's geological history; but when we study the animals and plants of northern and interior Africa, which are those indigenous to Egypt, we find ourselves in presence of types most of which have long disappeared out of Europe, though they occurred there also in past geological ages.

On the other hand, those parts of the world which had been most thoroughly prepared by the long series of geological changes for the residence of the higher animals, are those in which the earliest communities of men established themselves, and where they most increased and multiplied. Hence it has happened that the two greatest empires of the Old World grew up on

the modern alluvial plains of the Nile and the Euphrates, though at later periods the hardier races, nurtured on the older geological formations, have shown themselves able to overcome those accustomed to the easier life of the great fertile river valleys.

The history of the Jewish people curiously illustrates these facts. Originating in the Euphratean valley, the family of Abraham was transferred to the plains of Mesopotamia and the hills of Palestine. It was then transplanted to the rich fields of Egypt, where it grew and multiplied amazingly. It next underwent a hard discipline on the rocks of the Sinaitic peninsula, and was thence brought back to Palestine, a country remarkable for the great range and variety of its geographical conditions. Throughout these migrations, the movements, the character, and the fortunes of the people were influenced in multitudes of ways by the physical conditions of the regions in which they were placed; while their subsequent history and the character of their civilisation, and even the peculiarities which they now present as an exiled and scattered race, were moulded by the special features of Palestine itself. Hence there is a real connection between Bible history and the physical features of the Bible lands, and, though both are intensely interesting when separately considered, they are much more instructive when viewed in connection.

To the voyager approaching from the North, Alexandria, the great maritime city of Egypt and the queen of the Delta, appears as if floating on the sea, with no appreciable foundation of land. Its white buildings, its palm-groves, and the varied Oriental garbs and guttural Semitic tongue of the people who swarm out in boats to meet an approaching steamer, at once place the European

traveller in contact with those sights and sounds of the Eastern world which are so very similar even now to what they were in the most ancient times. One of the Canadian boatmen who accompanied Lord Wolseley's expedition compared it to walking into the pictures of his mother's old family bible.

The site of Alexandria was well chosen by the engineers of Alexander—westward of the driftage of Nile mud, which has blocked so many other harbours on this coast, in shelter of a natural breakwater projecting from the ridge of sand and recent limestone which here fringes the Delta and Lake Mareotis, near the quarries of a soft but useful building-stone, and conveniently placed for tapping the great western branch of the Nile. These natural advantages would have made it a greater and more prosperous city than it has been but for the interference of human passions, aggravated in intensity by the fact that it has always of necessity been a meeting-place of diverse and incongruous national elements. The last example was seen in our own time, and its disastrous effects have not yet passed away.

Alexandria is too new a city to figure in Old Testament history; but it is connected with that early translation of the Bible into Greek which has done so much to make the book familiar to European nations; and its great library and university made it a centre of thought and influence in which the learning and philosophy of the East and West were strangely blended. It furnished to the primitive Church its most eloquent preacher, Apollos, as well as many famous men of the patristic age, and its religious life was a great factor in the history of the early Christian centuries. Its scholarship, even after the barbarous destruction of its library,

was a main source of the science and learning usually attributed to the Arabians of the Middle Ages.

Alexandria and its people thus connect the Old World of Egypt with the more recent history of Europe; and though a modern city in comparison with some others in Egypt, it is historically old. Yet to the geologist its site, and the Delta on the margin of which it stands, are but of yesterday, and the stone of which its public works and its houses are mostly built is also of comparatively modern date. Except the shafts of columns and masses of stone brought down from Upper Egypt, there is nothing here that is not geologically modern. The obelisks that once adorned its temples and palaces, and Pompey's Pillar, testified to the stranger of very old crystalline rocks in the interior of the country. Egypt has been robbed of the former, but the latter still remains—a shaft from the distant quarries of Syene, 67 feet in height and 9 feet in diameter, which must have been transported 600 miles from its native rock, and is especially interesting as affording the latest example of the transport of great monoliths in Egypt, its date being about A.D. 302, in the reign of Diocletian. The soft limestone and indurated sand of the vicinity of the city are of late Tertiary age, probably a little older than the advent of man. The mud of the Delta stretching southward of the city is in great part a deposit of the historical human period produced by the river, which still in its inundations covers much of the surface.

Let us inquire what this modern date really means, and what is implied in the often-quoted statements of Herodotus, that Egypt is 'the gift of the Nile,' and that the Delta is younger than the Egyptian people. The

Delta is a triangular plain, having its apex at Cairo, where the narrow valley of the Nile begins to widen out to the north, and its base on the Mediterranean. The distance from the base to the apex of the triangle is a little more than a hundred miles, and the length of the base about a hundred and fifty miles. The western side is formed by the Libyan desert, and the eastern side by the Arabian desert, both dry and sandy, a little higher than the level of the Delta, and based on somewhat older formations.

The Delta, being composed of Nile mud brought down by the river, must occupy what once was a bay of the Mediterranean Sea, into the head of which at Cairo the Nile began to pour its muddy deposits. It must have been a shallow bay, with a sandy bottom, for on its seaward margin there are ridges of soft stone composed of fragments of shells and of sea-sand, which were thrown up by the sea before there was any Delta. Farther, in various parts of the Delta, there are sandbanks, which are portions of the old sea-bottom projecting above the alluvial deposit, and which are now often occupied by the towns and mud villages of the people. Had the Nile begun to pour its waters into a deep bay, there might have been no Delta, or only one of very small dimensions.

The way was prepared for this wonderful deposit by previous geological processes of a somewhat remarkable character. Before noticing these, and remarking on their dates, it may be well to premise that the borings hitherto made in the Nile sediment give it a depth of from 59 feet (Horner) to about 60 feet (Figari Bey); and, according to the latter, works of man are found to only about half that depth, though at the estimated rate

of deposit of one-twentieth of an inch annually, this would give a great historical antiquity to man in Egypt, and would still leave a vast period of accumulation before his arrival. There is, however, good reason to suppose that, though the estimate above stated may be near the truth for modern times, it cannot represent sufficiently that of the earlier history of the river. It applies also to the valley above the Delta, rather than to the Delta itself. So far as the latter is concerned, the frequency of bare patches of sand seems to imply that the original surface was somewhat uneven, and that in most places the alluvial deposit is not very deep, and rests on sand with rounded grains similar to that of the desert, which is probably of very unequal thickness. What may be below this we can only infer from the deposits cropping up farther inland or from borings. The recent borings undertaken with the aid of a grant from the Royal Society of London have been carried to considerably greater depths than those previously made without reaching solid rock ; but they include not merely the modern delta deposits, but those older materials that were deposited when the Nile valley was cut out in the later Tertiary period. In the boring at Tantah, for example, as recorded by Prof. Judd in the Proceedings of the Royal Society,[1] the following general sequence occurs :—

Samples 1 to 5. Brownish clay or fine sand, ordinary Nile deposit, surface to about 40 feet.

Samples 6 to 9. Rounded sand grains (desert sand) 80 to 99 per cent., with some mud in the interstices, 40 feet to 56 feet.

Samples 10 to 12. Loam and clay, reddish-brown and

[1] Nov, 1885.

gray, with sand 7 to 59 per cent., and fragments of limestone, and calcareous concretions, 56 feet to 73 feet.

The sequence agrees in the main with those derived from the borings of Horner and Figari Bey, and of Col. Maitland at Rosetta, and with the sequence of deposits observed in various parts of the Nile valley and the Isthmus of Suez. Its significance we shall understand immediately.

This somewhat prosaic series of borings gives us in truth what we may call a pre-historic history of Egypt, older than that which we can read on its monuments. The first or upper part is the modern deposit of Nile mud which has been laid down in historic times, and is still being produced. The second group of borings belongs to an earlier period, when the land of Egypt was at a higher level than at present, and much of what is now the Delta was a desert invaded with blown sand. We do not know if man was in Egypt in this period. If there were Egyptians of that age, they were not such as we know in history, but antediluvian men, and any remains they may have left are probably deeply buried or even submerged. We have evidence however of men of this age in the Lebanon and in Europe. The third group belongs to an earlier time, though still modern geologically, when Africa was an island, and when the Nile valley was being scooped out by the sea and by abundant rains, and its debris deposited in the bay which then occupied the place of the Delta, and whose salt waters extended far above Cairo. I have taken the Tantah boring as an illustration of these changes, but it is to be observed that river, estuary, and desert deposits, like those of the Delta, are locally very irregular, though

by extended comparison of them a regular sequence may be made out.

We are now in a position to consider the history of the Delta more in detail, and to assign names to the periods and deposits above referred to. Neglecting for the present previous changes of level, the period immediately preceding the introduction of man on the earth, that usually known as the Glacial or Pleistocene age, terminated in the northern hemisphere with a great and very general submergence of the land corresponding to our third group of borings. At this time a great part of Northern Africa was probably under the sea, and the portions out of water must have had a very moist and cool climate compared with that which they experience at present. This submergence was succeeded by what Lyell has termed the 'Second Continental period' of the later Tertiary age. In this the Mediterranean was smaller than at present, and what is now the Delta was probably an arid or desert region, with a narrow belt of verdure along the Nile of that time, which may have occupied a continuation of its present channel across the area of the Delta, or may possibly have run eastward toward the Red Sea. This old channel, which may have been excavated as early as the Pliocene period, may yet be discovered by boring; but the study of the deposits on the Isthmus of Suez, and more especially the Nile shells found in them, countenance the belief that in part of this period the whole Nile may have run eastward.

The Second Continental period was that of the Palæocosmic, or 'Palæolithic' men, or of the 'cave-men' and 'river-drift men,' the men of the 'Mammoth age' of Europe and the Lebanon; and it not unlikely coincides

with the antediluvian period of history.[1] If man had made his way into Egypt at that time, he probably existed under conditions somewhat different from those of the present day, for there was no Delta, unless in a district now submerged. The Second Continental period was closed by a new submergence, apparently of a very limited duration, though of great extent and locally of some violence. Considerations that are daily growing in cogency tend to identify this submergence with the historical deluge, which, as Lenormant has so well shown, is an event that enters into the authentic history of all the leading races of men, and is no longer to be regarded as pre-historic in any sense. The re-emergence of the land after this event left the Mediterranean with nearly its present limits, and what is now the Delta became a shallow bay, bordered with sand-banks, and ready to receive the deposits which the Nile began anew to pour down from its distant sources in the mountains of interior Africa, and to distribute in its annual inundations. No theory of these deposits can stand for a moment which does not recognise the old excavation of the Nile valley and the remarkable preparations made for the formation of the Delta.

Now arises the question of historic date, with reference to the time when the formation of the Delta began, and the time when postdiluvian man appeared to take possession of it. Whatever Egyptologists may make of imperfect and uncertain lists of Egyptian kings, many of them evidently unhistorical, or contemporary heads of local tribes, the history of Egypt as a nation must begin after the Deluge. Anything previous must relate to pre-historic times. We may also assume, on the evidence,

[1] A question which we shall have to consider in a subsequent chapter.

so ably summed up by Rawlinson, of the convergence of the history of all the ancient nations to a point about 3000 years B.C., that the dispersion of men after the great flood is an event that occurred somewhat less than 5000 years ago. The early colonists who at that time made their way to the Nile valley must have found its conditions approximately similar to those that exist now, except in regard to the extent and level of the Delta. But we know from the marks left by the inundations of that early time that they were higher than at present, either because of a greater supply of water or because of the bed of the river not being so deeply cut or completely levelled as it afterwards became. We also have reason to believe from the monuments that the early settlements of the Egyptians were on the Upper and Middle Nile, not on the Delta; that the earlier kings were much occupied with works of embankment and drainage; that the Delta, probably because of its lower level and smaller extent, was less important than at present. As their history advances we find their capital moving from Upper Egypt to Memphis, and finally to cities far north on the Delta itself. But we must not suppose that the whole history of the Delta is a record of gain on the sea. In geology subsidence often proceeds *pari passu* with deposition. Accordingly we find that the Delta has been visited with earthquakes and that its northern border has been settling while apparently some lifting up has taken place to the southward. Hence much of the area once cultivable ground is now covered with the waters of Lake Menzaleh, and an Arabian historian relates[1] that this subsidence

[1] Mas'oudy, quoted by Miss Edwards.

was going on as late as one hundred years before the Arab conquest.

All this corresponds with the conclusion, deducible from the physical conditions, that the process of natural warping by which the Delta was formed began in the early human period, and was proceeding rapidly during the earlier portion of the Egyptian monarchy. It was, however, retarded and brought nearly to a close long before the Christian era by the less amount of the inundation covering the now higher surface, and by the impossibility of pushing the deposit farther to the north, in the face of the Mediterranean currents and an increasing depth of water. So it was that Lower Egypt at least was the gift of the Nile, and that in early times the gift was growing in magnitude as the population increased to receive it.

It may be well here to notice the precise nature of the Nile mud, and the sources whence it is derived. The Nile holds at all seasons, and especially at the time of the inundation, much solid matter in suspension, causing it to have, as a facetious French writer says, the colour of '*café-au-lait très noir*,' and yielding a deposit of about 100 grains to the imperial gallon. This mud is often so fine that I have found it to require more than twenty-four hours to settle perfectly, and it is not only deposited on the alluvial flats of the Nile valley and the Delta, but some of it is carried 40 miles out to sea.[1] Yet under the microscope this mud is found to be in reality fine sand, and this not mere particles of flint, but angular fragments of many crystalline minerals not found in the rocks of the Nile valley anywhere north of Assouan.[2] In point of fact the Nile, flowing

[1] Newbold. [2] See Judd's Report, Proceedings Royal Society, 1885.

through a rainless district, derives no sediment from its banks, except when it removes some of its own previous deposits. The source of the material is chiefly in the distant mountains of Abyssinia, and the wasted rock ground out of these by tropical rains, is carried by the Blue Nile and the Atbara into the main river. The minute fragments of rock thus making up the Nile mud, and which under the microscope and viewed with polarised light, sparkle like gems, contain much alkaline matter and phosphates, and as they gradually decay in the warm moist soil give up these to the roots of plants. At the same time the material, being sand rather than clay, crumbles readily when moistened and is permeable to water. This remarkable material constitutes the agricultural wealth of Egypt, and at the same time when it settles leaves the water as pure and soft as that of a mountain stream. Thus the early statement of Herodotus is fully vindicated, and the mud and water of the Nile constitute the life of Egypt.

The early Egyptians who seized upon this rich and promising inheritance were not barbarians. They were industrious and skilful tillers of the soil, and they carried with them from their primitive homes the arts of antediluvian times, and more especially those of irrigation and construction in wood, brick and stone, which they began from the first to practise in the valley of the great African river. They must have been the better able to do this because of their comparative isolation. Commerce had scarcely begun in the Mediterranean ; the interior of Africa was for the most part an unoccupied solitude ; the Libyan and Arabian deserts were barriers on the right hand and on the left ; and the Isthmus of Suez, though it probably connected as at present Asia

with Africa, was then narrower than at present. In these circumstances the Egyptians must have multiplied rapidly in their valley, so productive of food, while they had no inducement to emigrate or to engage in foreign wars, and no man's hand was against them. Thus they began to execute great public works at a very early period, and attained to the standing of a numerous and cultivated people at a time when, as we can gather from the early history of the Asiatic nations, the latter were comparatively unconsolidated.

To a traveller from the West, the general physical aspect of the Delta, though with differences in detail, recalls the great alluvial plain of the Red River as it appears in Minnesota and Manitoba; and it is remarkable that the soil of these plains, derived from the waste of the crystalline Laurentian rocks, which are similar to those of Abyssinia, is almost precisely like that of the Nile. The differences in climate, in the arboreal vegetation, in the habitations of the people, and in the people themselves, however, are most striking. The people impress a stranger favourably. Tall in stature, strong of limb, active in gait, industrious in their tillage of the soil, and withal cheerful in aspect, and with well-developed heads, one wonders by what strange combinations of historical circumstances such a people should have been trodden under foot by inferior races of men, and should now be doomed to abject poverty and oppression in a land teeming with all the elements of wealth, and in which the agriculturists, instead of inhabiting comfortable homes, herd together in groups of mud cabins, destitute apparently of every comfort.

It is a sad story; but the result is that the fellaheen of to-day are doomed to labour for others rather than for

themselves, and to be 'servants of servants.' May the time soon come when, under higher religious education and political influences, they may develop fully the powers inherent in them, and Egypt may again rise to a high place among the nations of the earth! Something has already been done in this direction by our own Government, so strangely placed in the position of guardian of this long-neglected country; but much more remains to be done, and the elevation of the people is that which alone can give a stable basis for future prosperity. At present the condition of the Egyptian fellaheen, in reference to habitations, clothing, occupations and political bondage, very closely represents that of the Hebrew people in the times of their oppression under the great Egyptian kings of the nineteenth dynasty; with this exception, that the Hebrew was the slave of a great and independent monarch, the modern fellah of a mere viceroy whose power depends on foreign assistance.

The Delta has important relations to the Bible history. As early as the time of Abraham it seems to have been fully occupied by the Egyptians. The city of Zoan or Tanis on its north-eastern side was already built, having, as we are informed in the Book of Numbers, been founded only seven years after Hebron, which was evidently a town of some standing before Abraham's migration. Heliopolis was also at this early time a centre of the worship of Ra, the sun-god, and of priestly influence. The history of Zoan or Tanis, which has recently attracted much attention owing to the explorations of Mr. Petrie under the auspices of the Egypt Exploration Fund, throws much light on the early occupation of the Delta. The note in Numbers already referred to implies the probable foundation of Zoan

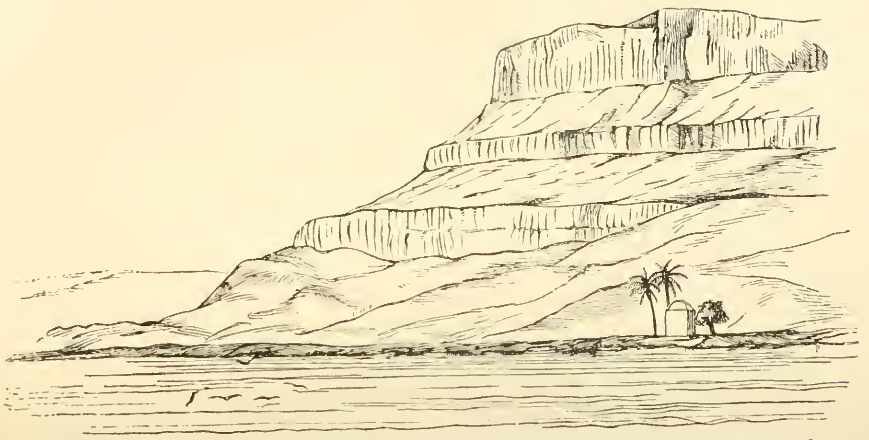
by an Asiatic colony before the days of Abraham, whether these founders were the Hittites who possessed Hebron in Abraham's time, or the traditional Arba, 'the father of Anak,' referred to in the books of Joshua and Judges. In the one case the founders would be the children of Heth, in the other the Anakim. In either case we have the interesting fact that when king Amenemhat of the twelfth dynasty, who according to Petrie is the earliest Egyptian king whose monuments occur at Zoan, took possession of the place, he found there already a colony of Sati or Asiatics, whom he expelled or subdued, and whose descendants may have reinforced the Asiatic Hyksôs in their invasion at a somewhat later date. Thus we find that from a very early period the Delta was a meeting-place and scene of contention of Asiatic and African colonists. This was that 'land of Mizraim' which with its rich green fields, its feathery palms, and canals of sweet water, has always been even as the 'Garden of Jehovah' to the dwellers in the scorched and thirsty deserts on its borders. The foreign conquerors, known as the Hyksôs or Shepherds, the earliest known invaders of this blooming garden, established their capital in Zoan, and made the Delta for a time the centre of political power for all Lower Egypt; and long after their expulsion we find, at the time of the Exodus, the native kings who succeeded them holding their court in that city.[1]

The land of Goshen, where Jacob and his sons settled, is a strip of cultivable soil extending eastward from the Delta toward the Red Sea, and depending for its fertility on the fact that one of the numerous branches into which the Nile divides in the Delta ran eastward along

[1] Compare Numbers xiii. 22, and Psalm lxxviii. 12.

a slight depression, now known as the Wady Tumilat, and this branch, as well as the alluvial valley watered by it, was then, before the recent changes of level that have affected the Delta and Isthmus, more important than in later times. In this district the Hebrews had not only a rich agricultural country, but open pastures on either side, and were in a position to control much of the trade and intercourse of Egypt with the East, and to act as carriers between the former and Palestine and Arabia. It is likely also that in the later days of their sojourn they were extending themselves over other parts of the Delta and supplanting the native Egyptians, and that they thus excited the animosity of the ruling classes and the jealousy of the government.

C



Lower Eocene limestone and Marly Beds near Thebes, showing the character of the bounding cliffs of the Nile Valley.

CHAPTER II.

THE NILE VALLEY.

CAIRO is at present the great centre of Egyptian life, and the second Mussulman city in the world. It is the successor of old Memphis, and both cities have owed their importance to their position at the point where the long Nile valley enters the apex of the triangle of the Delta, a point well suited to be the centre of political control for both Upper and Lower Egypt. When the Delta was a bay of the Mediterranean, and before the Nile deposits had filled it up, the limestone ridge of Mokattam, rising to an elevation of about 600 feet behind Cairo, was a rocky promontory washed by the sea, and projecting into the bay, as it now projects in like manner into the alluvial plain. Its age is that of the Eocene Tertiary, or about that of the London Clay, and it abounds in fossils, more especially those round discs, shells of humble marine protozoa, known as *Nummulites*, and which Strabo was informed were petrified beans—'Pharaoh's beans' (Fig. 6, p. 33). The point of the promontory, partially separated from the main mountain, furnishes a site for the citadel, at the foot of which the city lies on a level scarcely elevated above the annual inundation. Cairo has no claims to greater antiquity than the Persian conquest of Egypt (B.C. 525), and did not become a place of commanding importance till after the

Arabian occupation of the country. Why did the ancient Egyptians neglect this beautiful and imposing site, and erect their capital on the opposite side of the river, several miles farther up, and in the midst of the alluvial plain, here about five miles wide, and with the river towards its eastern side?

The site of Memphis is just such a slight elevation on the alluvial plain as the modern fellaheen select for their villages, as being more or less above the inundation, and near to the cultivated ground. In primitive times it was no doubt so selected, perhaps at a time when it was not far from the northern limit of the cultivated land of Egypt, and it was adopted by the Egyptian kings as their capital when they moved thus far towards the Delta. Perhaps the traditional connection of the place with the worship of Ptah, the Creator, may have aided in determining the selection.[1] There was besides the facility for constructing defensive ditches round it, and the absence of any dominating height, such as that which commands Cairo, and has placed even its citadel under the guns of besiegers. Besides this, the Egyptians seem to have preferred sites facing the rising sun, and they no doubt had also an eye to the excellent quarries of limestone immediately opposite the site of Memphis, and to the facilities offered by the river and canals for the transport of building material.

As a city Memphis has utterly perished, for even its stones have been retransported across the river to con-

[1] Ptah was perhaps, in the esoteric system of the Egyptian priests, the Spirit of God, introducing order and life into chaos. The seven *Knumu*, or architects associated with him in the creative work, probably represent the seven stages of that work, or days of creation, as they appear in the Hebrew and Chaldean records. The bull Apis, the original of the Golden Calf of Hebrew idolatry, was his emblem, and the magnificent tombs of these bulls still exist in the necropolis of Memphis at Sakkara.

struct buildings in Cairo. Its necropolis alone remains, the burial-place of the dead population of a dead city. *Men-nefers*, the strong and beautiful, as the Egyptians formerly called their great city, has given place to *El Kahira*, 'the Victorious,' a name commemorative not of Egyptian victory, but of Egyptian defeat by an alien race which in old time was despised by the Pharaohs.

The necropolis of Memphis, extending for twenty miles along the desert plateau bounding the river and overlooking the city, is the greatest cemetery in the world, and in the Pyramids possesses the grandest of funereal monuments. There is fortunately no need to describe the Pyramids. In addition to older productions, Petrie's recent work leaves little to be desired as to their measurements and details. The greatest of them, that of Khufu, even in its present dismantled and ruinous state, is a most impressive structure; but if we replace in imagination its smooth casing of pure white limestone, its surrounding pavement, walls, and subsidiary buildings, we can easily imagine that it was not only very grand but beautiful in its majestic simplicity when it left its builders' hands. In its present state one is perhaps most deeply impressed with its evidence of patient and skilful labour. Its massive stones, carefully squared and accurately laid in durable mortar, and the remains exhumed by Col. Howard-Vyse of its outer casing of pure white fine-grained limestone, attest the skill of its builders and their honest painstaking work; while the labour required to quarry and transport this mass of material covering thirteen acres, and 470 feet in height, almost surpasses belief. The Great Pyramid, though the largest, is only one of very many, and some of the smaller ones are constructed of more costly

material. Its neighbour, the Pyramid of Cephren, had its lower courses built of the red granite from Syene, and the next, that of Menkera, was wholly cased with this expensive material. Almost as interesting as the Pyramids themselves is the ruin of the once magnificent temple or Mortuary Chapel erected by Kaphra or Cephren in front of his pyramid, and constructed of magnificent blocks of red granite from Syene, with interior lining of alabaster. It is one of the oldest as well as one of the most sumptuous buildings in the world. In this were found no less than nine statues of Cephren, all portrait statues of life-size and sculptured in one of the most difficult yet durable stones in the world, the anorthosite gneiss of the Laurentian rocks. One of the most perfect of these statues is now in the Boulak Museum and is a marvel of beautiful workmanship, as perfect as when it left the sculptor's studio, owing to the great durability of the stone of which it is composed. The guide-books call it diorite, but it is really a gneissose lime-felspar, very much like that which characterises the Upper Laurentian of Canada, and the light gray colour and semi-translucency of the felspar with darker lines of hornblende give it an appearance similar to a gray-veined marble, though it has a far higher lustre and polish than any marble. Our outline of the head shows the hawk of Horus sheltering the monarch's head ; but gives little idea of the grave beauty of the face.

The Pyramids stand on a plateau of Eocene limestone, elevated about 120 feet above the Nile, and filled with marine fossils, most of which have been described in Zittel's elaborate memoirs on the geology of the Libyan desert. The same rock occurs on the opposite

side of the Nile, but there it rises to a height of 640 feet in the Mokattam ridge, though at the foot of this there is a plateau corresponding to that of the Pyramids, and which presents some very interesting features, to be mentioned in the sequel, in connection with the



Fig. 1.—Head of Kaphra (Cephren), the builder of the second Pyramid. From a statue in the Boulak Museum.

geological structure of the country, and the origin of the valley of the great Egyptian river.

The first builders of old Memphis must have been immediate descendants of the survivors of the Deluge, and perhaps contemporary with some of them. Mazor, the son of Ham, was not improbably the leader of the first colony that settled on the Nile; and not many generations removed from Ham were the builders of

the earlier pyramids. We are curious to know what manner of men were these ingenious and industrious people. We may learn something of this from the specimens in the Boulak Museum,[1] a collection not so large as some Egyptian collections in Europe, but inestimable in value. There we have actual portrait statues of men and women of the earlier Egyptian dynasties, collected in one room, and affording admirable opportunities to study their physique and some of their arts and tastes. These statues are remarkable for their accurate and realistic execution, equally remote from the ideal beauty of the advanced style of Greek sculpture and the conventional style of the later Egyptain art. Their features are sharp and regular, with well-formed heads, large eyes, prominent straight noses, and expressive mouths ; and the abundant hair is arranged in numerous strands or plaits. We might accept such a man as Kaphra (Fig. 1), the priest Ra-Nefer of the fifth dynasty, or the lady Nefert of the fourth dynasty, as typical representatives of the Noachidæ, the immediate descendants of Noah. The high type of these early people is shown not only by their features but by their works of art, which are better in point of taste than those of later periods. Paintings of this earliest age on the walls of tombs, and the hieroglyphic characters in inscriptions, are remarkable for their delicate and truthful execution. This is especially the case with some wooden panels, for the earliest Egyptians were as great artists in wood as their successors were in stone, and they exceeded their successors in the graceful realism of their figures of natural objects. One of the wall paint-

[1] Boulak is a suburb of Cairo, and its Museum is the national one of Egypt.

ings, now at Boulak, representing two species of wild geese, is so accurate in outline and colour that it might serve for an illustration in a modern book of natural history, yet it is probably the oldest painting known. It is interesting to think that the statues in the room of the early dynasties at Boulak carry us back probably farther than any others to the infancy of the sculptor's art in representing the human form, and to the actual appearance of the descendants of Noah, at least in the line of Ham, not many generations after the deluge.

But the next room in the historical series brings us into the presence of a new and different race, that of the Hyksôs, or Shepherd Kings, who, in the disturbed and anarchical period that succeeded the early dynasties, invaded and took possession of Egypt, and are said to have held at least the lower portion of the country for 500 years. Few monuments exist of these people. They were, perhaps, less given to erecting permanent structures, or perpetuating their appearance in sculpture, than the native kings; but the late Mariette Bey was so fortunate as to secure, in the ruins of Zoan or Tanis in the Delta, some indubitable representations of them, done in the hard and imperishable black diorite of Upper Egypt. We see at a glance that we are here in the presence of a new race. The faces are broad and flat, with high cheek-bones, wide lower jaw, and prominent, firmly-set mouth. The style of hair and dressing is different; there is a wide and bushy beard, flowing hair with a sort of pigtail behind; and we see, in addition to a kilt with longitudinal stripes, and sometimes with what the Scots Highlanders call a philibeg in front, a leopard's skin thrown over the shoulders as a cloak. The countenance of these people is decidedly Turanian or Mongol,

and, indeed, closely resembles that of the aboriginal races of North America. One of the figures in the Boulak Museum might pass for the portrait of a Chippewa chief.



Fig. 2.—Hyksôs Head, supposed to represent King Apophis or Apepi, perhaps contemporary with Joseph. From a Sphinx from Tanis (Zoan) in the Boulak Museum. (E. D.)

There is no race now in Egypt or Western Asia at all resembling these people, unless, as reported, a remnant of it still exists in the marshes of Lake Menzaleh. They are quite distinct from the Hebrew people, whom they must have preceded in the occupation of the Delta. It

is no wonder that this stalwart and rough-featured race was repulsive to the refined native Egyptians, independently of the high-handed oppression attributed to it. It is further interesting to observe that we may have in these statues authentic portraits of representatives of those old pre-Canaanite peoples of Syria, so much dreaded by the Israelites, the Anakim, Zuzim, and Zamzummim, who are mentioned by Moses in the book of Deuteronomy as having preceded the populations of Palestine existing in his time. It is true that much uncertainty attends the history of the Hyksôs or Shepherd Kings, and the writer has been sharply criticised for supposing that they may have been primitive Turanians. There are, however, some important indications in this direction in those interesting notes on primitive Palestinian peoples in the second chapter of Deuteronomy, which we find, on comparison with Genesis xiv, contain some facts which seem to illustrate the Egyptian stories of their old oppressors. We learn from these early scriptural records that populations known as Emim, Zuzim, Rephaim, Zamzummim, &c., anciently possessed much of Palestine, and that they were people of great stature and military prowess. In the time of Abraham we find these people subdued by the rising power of the Euphratean nations, and subsequently they are said to have been displaced by Semitic and other peoples. Now what can be more likely than that these people, pressed by enemies on the East, passed into Egypt, where, as we have already seen, there were probably allied tribes of old standing in the Delta. This has always appeared to me to be the most likely theory. In any case their features show that they were not Hittites, in the Bible sense, for the Hittites of the Bible were Canaanites, whose physiognomy is well known from

the monuments, and still exists among the fellaheen of Syria. Nor have they the faces of Semites. It is to be observed, however, that the early Bible notices show association or mixture of the older Palestinian peoples with the Hittites of Hebron, and with the Edomites, Ammonites, and other Semites, so that the invaders of Egypt may have been allied or associated with tribes of different race; but their special ethnic characters remain stamped on the few monuments that survive, and which have been well figured by Tomkins in his *Studies of the times of Abraham*, a work which contains much interesting information as to the early peoples of Palestine.[1] Conjecturally, at least, we are thus enabled to connect these almost prehistoric populations with the early conquerors of Egypt. They were evidently men of stern and determined character, probably of large stature and great physical power, and more given to war and the chase than to quiet pursuits.

The Hyksôs were expelled by the native Egyptians, who had concentrated their power in Upper Egypt, under a hero named Taā-ken, whose mummy recently unrolled at Boulak shows that he fell in battle; and Ahmes I founded a new Egyptian dynasty, the eighteenth of Manetho's lists. There must, however, have been some compromise and intermixture, for we do not find in the statues of the succeeding dynasties the pure early

[1] Derivations are often treacherous. The word Hyk or Hak, signifying king, and used by Deborah (Judges v. 9) for a prince, is our familiar onomatopoietic 'hack' for cut; whence engrave, inscribe, decree, judge, &c., and thus ruler or maker of decrees. But the first syllable of Hyksôs is quite as probably the primitive interjectional 'ug' or 'og,' meaning something marvellous or awful, and applied to gods and kings, which would place it, despite of ordinary etymology, in connection with such names as 'Og,' king of Bashan, 'Agag,' the royal title of the Amalekites, and with a term for objects of veneration which is world-wide in its use, existing in one form or another perhaps in every language.

Egyptian type. Seti, Rameses II, and other great kings of the 'new monarchy,' which is yet as old as the Exodus, show a mixture of the Hyksôs type, and also of the Ethiopian or Nubian, in their features; and their military and aggressive character seems to tell the same tale. The relations of the Israelites to these successive dynasties raise interesting questions, which we may more fully discuss in their connection with the physical features of Egypt in the chapter on the Exodus. It is only necessary to say here that the circumstances attending the visit of Abraham to Egypt render it likely that the Hyksôs were at that time already in Egypt, and that the migration of Jacob into Egypt was connected with their expulsion and removal into Palestine. This view, at least as probable as any other, seems best to harmonise the Egyptian records with the Bible history.

If we ask the question, What is to be seen to-day of the several races that have occupied Egypt? the answer may be found in the streets of Cairo, where one may find every type of countenance, from that of the early Egyptian to that of the English army of occupation. Three leading types are dominant. One is that of the Egyptian proper, and in this we often see startling resemblances to the oldest statues at Boulak. Another is that of the Nubian, a negroid style graduating into the genuine Ethiopian. Another is that of the Semitic Arab. Perhaps one may add the Turk—a very mixed race, but when it appears in its purity having some affinity with the Mongoloid type of the old Hyksôs. There are, of course, all shades of indefinite intermixture; and the mixed race is, with the exception of a tendency to diseased eyes, one of good physique and well-formed head, auguring some promise for the future of Egypt

in the new era which it may be hoped is dawning on it, under the influence of justice and Christianity.

In order, however, that we may be able to understand fully the conditions of humanity in the Nile valley, the facts of its early human history, and the problems it now presents to the statesman and the philanthropist, it will be well that we should know something of its structure above the Delta, and of the geological changes which, in pre-human times, brought it into its present condition, and caused it to become one of the most peculiar and unique of the dwelling-places of man.

The Nile valley, above the Delta, consists of a green and fertile alluvial plain, generally from five to eight

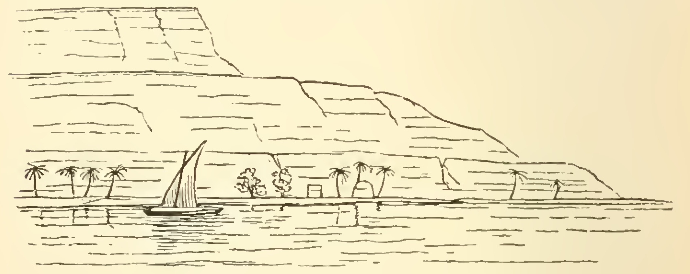


Fig. 3.—Terraces in Eocene Limestone above Assiout, on Arabian side of the Nile.

miles in breadth, all the way to the First Cataract at Assouan, which is more than 450 miles from its mouth. This narrow strip of alluvium, in which the river winds from side to side, is bounded on either hand by rising grounds, altogether desert, and often standing in high cliffs of limestone along the sides of the valley. The Nile valley, between the Delta and Assouan, is thus a trench cut through nearly flat rocks, which are principally limestone of Eocene Tertiary date ; but at Silsilis

sandstone of somewhat greater age takes the place of the limestone, and at Assouan the river throws itself in a wild cataract over ledges of hard gneiss and granite rocks.

Taking these rocks in ascending order, or from the older to the newer, the Assouan series is probably Laurentian,[1] or belongs to the oldest known geological formation, the same which constitutes certain of the

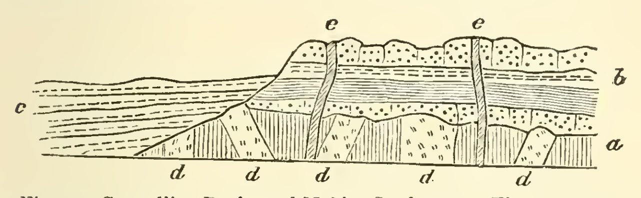


Fig. 4.—Crystalline Rocks and Nubian Sandstone at First Cataract.
a. Laurentian. *b.* Second crystalline series. *c.* Nubian Sandstone. *d.* Dykes of Granite and Diorite. *e.* Dykes of Felsite and Basalt.

Scandinavian mountains and of the western islands of Scotland, the nucleus of the Alps, and the Laurentide hills of Canada. The granite and diorite quarried at this place by the Egyptians belongs to great dykes and masses of igneous rock penetrating these ancient beds. Some of the highest and wildest hills at the cataract are, however, capped by a second hard formation, newer than the Laurentian, but still of great geological age,

[1] These older rocks at Assouan appear to constitute two distinct series. The lower consists of gneiss and hornblendic and micaceous (biotite) schist, penetrated by great dykes and veins of hornblendic granite and diorite. The series is of great thickness and nearly vertical. Resting on its edges are hard black slate, fine-grained gneiss, and a peculiar dark-coloured porphyritic rock. This second series is penetrated by veins of reddish felsite and of basalt, which of course also traverse the lower series. The lower series has distinctly the mineral characters of the Laurentian, the upper may be Huronian. In some places the lower series is deeply decomposed, and the harder dykes and the beds of the upper series form, at Philæ and elsewhere, most rugged and grotesque masses and heaps of boulders.

and consisting principally of porphyries and dark slates.

Next in succession to the old crystalline rocks are thick sandstones, which are seen at Assouan, and thence to Silsileh, where they form a barrier, narrowing the river and cutting out its alluvial plain, and where they have been largely quarried by the old Egyptians, of whose temples they form the principal material. These sandstones, known as the Nubian sandstones, are of

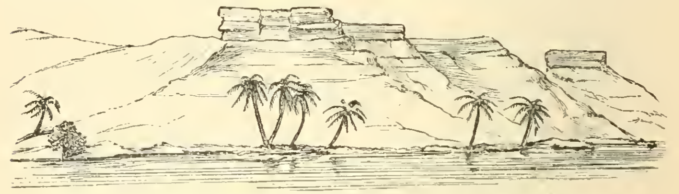


Fig. 5.—Cretaceous Sandstone and Marl above Silsileh (Silsilis).

somewhat uncertain age. They are, however, very much newer than the crystalline rocks above referred to, and are derived from their waste. They may be placed somewhere in the Mesozoic series of geology, and may possibly be as new as the chalk formation, some limestone and marls representing the upper part of which rest upon them. Yet I have inferred from the character of the only vegetable fossil now known in them, a fossil Coniferous wood, that some part of these sandstones may be as old as the Carboniferous. Fossils of that age have been found in sandstones of this kind in Arabia —the 'Desert sandstones' of Hull's Report ; and Dr. Schweinfurth informs us that some similar fossils have been found in sandstones in Eastern Egypt.

Upon the Cretaceous beds, and extending all the way to Cairo, where it forms the Mokattam hill, rests the

Eocene Tertiary formation, consisting of limestones of different qualities, often abounding in marine fossils. At the time when this was deposited nearly all Northern Africa was under the sea, as well as much of Western Asia and Southern Europe. In some portions of this period immense numbers of Nummulites were deposited, and these constitute the predominant material of consi-

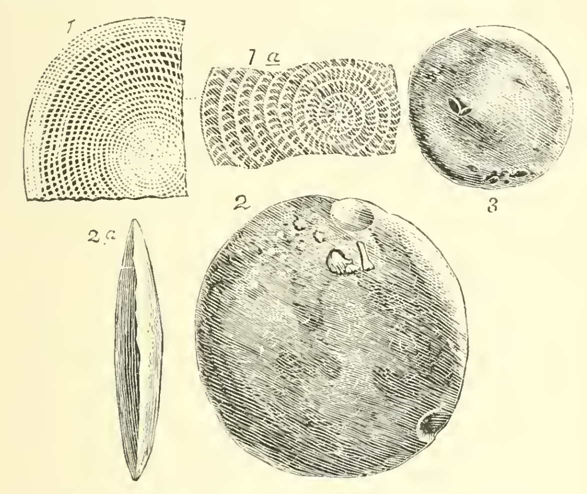


Fig. 6.—Nummulites Gizehensis (var. *Lyelli*), Gizeh.
1. Section showing chambers. 1 *a*. Portion magnified. 2 and 2 *a*. Large specimen. 3. Small specimen.

derable beds of limestone. At other times small microscopic protozoa produced shells similiar to those found in the English chalk and in the 'Globigerina ooze' of deep soundings in the Atlantic, and this material forms the fine white or cream-coloured limestone in which the old Egyptians executed some of their most exquisite sculptures. At other times beds of marl were deposited, and beds of sandy limestone, crowded with fossil shells,

corals, crustaceans, and sea-urchins. The succession of these beds and their characteristic fossils have been carefully worked out by Dr. Schweinfurth, of Cairo, and the whole are admirably exposed in the cliffs and quarries of the Mokattam range near that city, where abundance of characteristic fossils can be obtained from them.

After the close of the Eocene period these rocks were elevated into land, and became clothed with forests, which, at a later date, were submerged and buried in sand, constituting soft sandstones, since mostly swept away. In some places, however, where hot silicious springs penetrated these sandy beds, they became intensely hard, constituting a sort of quartzite; and this rock, resisting the action of water, remains as hard masses, which still exist in the Jebel Ahmar and other places,

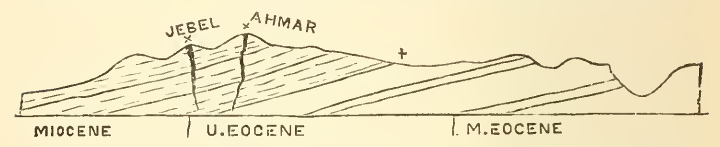


Fig. 7.—Relation of the Miocene Sandstone of Jebel Ahmar to the Eocene of the base of the Mokattam Hill.

× × Supposed Geyser pipes. + Bed with fossil trees similar to those of the 'petrified forests.'

while, where the softer beds have been swept away, the fragments of silicified trees, which curious travellers visit as the 'petrified forest,' remain scattered on the desert.

There has been much discussion as to the fossil trees of the petrified forests, but the above appears to me their true explanation. I found in the lower beds of Jebel Ahmar fragments of the silicified wood in place, and some of them in a state which indicated that they were in process of decay, and not petrified when imbedded.

At a still later period all these deposits were partially

submerged, and were exposed to the wasting action of the sea, which washed away the greater part of the sandstone imbedding the petrified trees, and, as it sunk to a lower level, cut into the Eocene beds, forming great terraces in the Mokattam mass. One of the principal of these is at a height of about 500 feet above the sea, and another at a height of about 200 feet, and roughly corresponding to the pyramid plateau on the opposite side. Dr. Schweinfurth kindly pointed out to me the

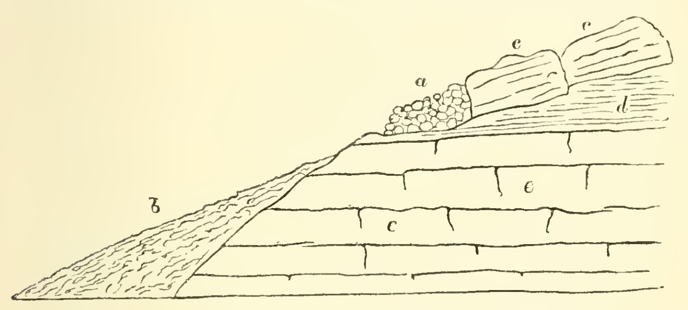


Fig. 8.—Raised Beach at Gizeh, about 150 feet above sea-level.
a. Beach. *b.* Sand. *c.* Brown Limestone. *d.* Clay and Marl. *e.* Limestone.

borings of lithodomous mollusks first noticed by Dr. Fraas, and also oysters adherent to the old sea-cliff and other recent shells in its crevices. Similar appearances exist at the edge of the pyramid plateau at Gizeh, where, on the side of an isolated cliff, known to the Arabs as Het-el-Orab, or the crow's nest, there are not only numerous oyster-shells attached to the rocks, but also an old sea beach with large stones. These facts prove that in the Pleistocene age all this part of Africa was submerged to a depth of more than 200 feet, and this for a long time, while the higher terrace shows a submergence to the extent of at least 500 feet. There

can be no doubt that the raised beaches of the Red Sea and the modern sandstones of the coast of Syria, seen at Jaffa and Beyrout, belong to the same period, in which all the lands at the head of the Mediterranean must have been partially submerged. It would therefore be hopeless to look for evidence of human residence in Egypt during or anterior to the great Pleistocene submergence, with which we are so familiar in Northern Europe and North America, but which evidently extended to Egypt as well. I was much struck with the essential resemblance of the Mokattam terraces to those with which I have been familiar in the valley of the St. Lawrence. The differences are mainly those which depend on a more or less humid climate. From this subsidence the country rose in the Second Continental, or 'Post-glacial,' period to a greater height than at present, and then, after some oscillations. sunk to that position referred to in the preceding chapter, in which the Delta began to be formed. It was no doubt in great part the sand resulting from the waste of the Tertiary sandstones and sandy limestones by the sea that shallowed the great Nile bay in preparation for the Delta.

We have now completed a rough geological sketch of Egypt, and have prepared the way for discussing, with the aid of the sections given above, the formation of the Nile valley above the Delta. To most people it may seem a trivial question to ask whether a river was before its valley or the valley before the river. But to a geologist any river at once suggests such inquiries, and it would seem that there is the more excuse for this in the case of the Nile, since questions of this kind have been asked respecting it at least as far back as the time of Herodotus. 'It seemed to me,' says that saga-

cious observer, 'that the whole extent of country lying between the mountains above Memphis was once an arm of the sea,' and this observation, together with the fact which he says he learned from the priests that the Nile mud was all derived from Ethiopia, includes the kernel of Egyptian geology.

If we are to form any intelligent opinion on this subject we must go back some distance in geological time. What may have been the condition of what is now Egypt in that Palæozoic age in which so large portions of the European formations were deposited, we do not certainly know ; but, inasmuch as there is a vast gap in time between the old, probably Laurentian and Huronian, crystalline rocks which appear at Assouan and the Nubian sandstone, their next successors in age, we may reasonably infer that in the long lapse of the Palæozoic and early Mesozoic ages Northern Africa was in the main a continental area, and may even have possessed a great river approximately corresponding to the Nile. However this may have been, it is certain that so soon as the still nearly horizontal beds of sandstone and limestone which now constituted the sides of the Nile valley had been raised out of the sea in the middle and later Tertiary period, there must have been a discharge of the waters of tropical Africa towards the north, and the existence of the present Nile must have begun. It may have wandered in the first instance somewhat widely over the flat surface of the country, and probably had at first both lakes and rapids in its course, but it must have been on the whole limited and guided by the previous formation of the region.

The general features which must have been influential in this are the following :—

First, a long ridge of old rocks, hard and elevated. extended northward from the African table-land along the west side of the Red Sea, and prevented the water from escaping in that direction.

Secondly, the existence of this ridge must have so determined the currents of the ocean, as the land was slowly rising, that the softer rocks were more cut away here than farther to the west, thus causing a slight depression between the Libyan table-land and the Arabian hills.

Thirdly, in the elevation of the sandstones and limestones out of the sea, certain cracks or faults were

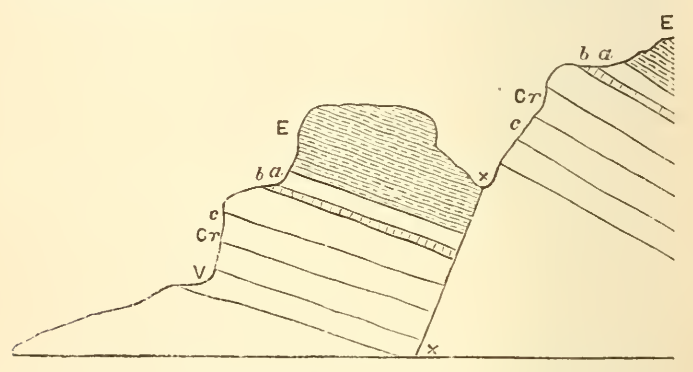


Fig. 9.—Section at Jebel Attaka, near Suez, showing a fault.
E. Eocene. Cr. Cretaceous, including, *a*. White Chalky Limestone ; *b*. Red and Greenish Marl ; *c*. Hard Limestone and Dolomite, with *Hippurites*, *Ostreæ*, etc. V Position of Quarry. × × Supposed line of Fault.

developed approximately in two directions, east and west, and north and south ; and along these the rocks were more friable than elsewhere ; and besides this the slipping of the beds up and down had caused hard beds to come opposite soft, in such a way as to produce considerable inequality in the resisting power of the surface,

obliging any river that might flow over it to take a more or less zigzag course. The evidences of these faults along the Nile valley are quite obvious to a geologist, and some of the more important north and south fractures must have coincided with the position of the river.

Fourthly, but before the river began to run, while the country was still in great part under the sea, the waves and currents had already acted upon the surface, cutting away the softer beds where exposed, and leaving the harder portions in relief. The great terrace cut back into the Mokattam hill at Cairo, at an elevation of 500 feet, is a proof of this denuding action at an early stage of the process, and the lower terrace of 200 feet, in

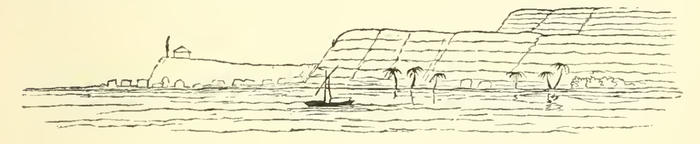


Fig. 10.—Mokattam Terraces, from the Nile.

which Fraas and Schweinfurth have found the burrows of lithodomous mollusks, and oysters of modern species attached to the rock, shows its action at a later stage, and probably as recently as the Pleistocene period of geology.

It may be added that these sea-cut terraces may be traced up the Nile valley as far at least as Silsilis, and show that before the final elevation of the country there must have been a long inland sea, into which the primitive Nile emptied its waters far to the south of the Delta. But at different portions of the history of the river these conditions must have so varied that, while at one period the Nile must have ended at the head of a long gulf of the sea, extending nearly to the First

Cataract, at another it flowed through an elevated desert plain, perhaps eastward to the Isthmus.

To sum up these conditions of the prehistoric Nile—the character of the valley as we now see it has been determined by the original structure of the country, by the fractures and denudation which it has experienced in times of emergence and submergence, and by what the river itself has done in cutting away and depositing material along its course.

Before proceeding further, it may be well to fix the relations of these changes to time and to the human period; and fortunately we are now in a position to do this more certainly than was possible some time ago. When the sea passed over the two-hundred-feet terrace behind Cairo, and washed the terrace on which the Pyramids stand, what is now the Delta was, as already stated, a part of the sea, and this must have extended a long way up the Nile valley, as the top of the First Cataract is now scarcely 300 feet above the level of the Mediterranean. Some have supposed that the time of this depression was as old as the Miocene Tertiary. From the very fresh condition of the bored surfaces and the shells attached to them, and the modern character of the species, as well as the nature of the Miocene deposits elsewhere, I am, however, inclined to refer them to a later date, possibly the later Pliocene or early Pleistocene. The subsequent elevation, which threw the sea farther out than its present boundary, and brought up the Delta to the condition of a desert plain, must, as stated in a previous chapter, have occurred in the Second Continental or Post-glacial period, corresponding with the antediluvian period of history; and the close of this and the bringing of Egypt to its present

level may be approximately fixed by the time required for the formation of the modern alluvial deposit. The ordinary thickness of this in the Delta, as proved by the recent borings of Colonel Ardagh and his staff, would appear, as already stated, to be from 30 to 40 feet in the deeper parts, and from this it diminishes to nothing in approaching the more elevated portions of the old floor of the Delta bay. It may be fair, therefore, to take the average depth of the modern Nile mud at 30 feet. The rate of deposit has been estimated at one-twentieth of an inch annually ; but this is certainly a minimum allowance, and there is good reason to believe that in earlier times the rate must have been much greater than at present. Taking one-fifteenth as a probable average, we have 5400 years as the time required for the Delta deposits ; and consequently the time when the production of the present alluvial plain began. Such a calculation may, indeed must, only roughly approximate the truth, but I feel convinced that no geologist who fairly weighs the facts can arrive at a very different conclusion. We may, in short, fix a date of between 5000 and 6000 years ago as the geological limit for the possible existence of man on the modern alluvial land of Egypt—in so far, at least, as the Delta is concerned.

We may now notice some of the local features of the valley, and its later history in connection with the agency of man.

As we ascend the Nile from Cairo to Silsilis, we pass along the alluvial plain, with steep and often precipitous banks bounding it on both sides, and quite abruptly on the east. Owing to the transverse faults already referred to, these cliffs often jut out in bold headlands, deflecting

the course of the river, which winds through the alluvial plain, sometimes skirting the base of rocky promontories or running near to the long lines of cliff, at others leaving a broad belt of green alluvial flat on either side, or even dividing to make room for alluvial islands built up by itself. There is no good reason to suppose that any important obstruction of the river by rocky barriers has occurred in this part of its course, though it is possible that landslips from some of the great cliffs on the Arabian side may have determined changes in its channel. It is interesting to observe, however, that points where the river has been obliged to bend in order to avoid rocky promontories, or to pass close to their bases, have been selected for towns. This is the case with Cairo, also with Assiout, and very markedly with great Thebes itself and other ancient cities in Upper Egypt. At the last-mentioned place, where the greatest bend that the river makes to the east occurs, this is caused by the protrusion from the west of that great spur of the Libyan hills in which the tombs of the kings have been excavated. The early and great prosperity of Thebes, as well as of other ancient cities along this eastern bend, was, however, also due to the fact that here the Nile approaches nearest to the Red Sea, and consequently affords the greatest facilities for access to the mines in the Arabian hills and also to the seaport of Koseir. One cannot help thinking that this old commercial highway had to do with the Egyptian traditions as to the early foundation of Coptos, Abydos, and other cities in that region, and as to the origination in these places of many features of the Egyptian religion. Colonists and ideas from the East, as well as merchandise, may have entered the Nile valley by this route. Such influences must have been

especially potent at those times, as during the rule of the Hyksôs, when the hostile occupation of Lower Egypt made this the main means of access to the outer world.

Some of the traditions respecting early changes in the river are explicable by reference to its present operations. Of this nature is the story of the dam said to have been constructed by Menes at Memphis. A few years ago the village of Beni Hassan was on an island, with the principal branch of the Nile to the east of it. Now it is on the mainland, the eastern branch having been quite filled up. Had it been desired to prevent this, the end might have been secured by forming a dyke of stones in the western channel, in the manner now sometimes done on the Nile. If in the time of Menes Memphis was insular, he may by some such operation have obstructed the channel on the west side, and converted it into a canal. The river at Thebes is at present much less convenient for communication between the two sides than in ancient times. A large quantity of land north of Luxor has been swept away by the river, and an island has been deposited in the middle instead. Had the city continued in its palmy state, this catastrophe could no doubt have been averted by the Egyptian engineers. The work of the Nile in historic times has, however, been mainly that of deposition and of making new cuts in its own alluvial deposits. Its work of rock-cutting probably belongs mostly to prehistoric times, or at least to the earlier part of the modern period. The most remarkable operation of this kind is that at the gorge of Silsilis, where the river is less than 1100 feet wide, and hemmed in by sandstone cliffs at both sides.

In approaching this place from the north, the high

banks of Eocene limestone give place to low broken mounds, belonging apparently to the softer beds of the Lower Eocene and Upper Cretaceous. These are followed by comparatively hard, thick-bedded sandstones, the so-called Nubian sandstones, which have been extensively quarried by the ancient Egyptians, and constitute, indeed, the principal building stone of the temples of Upper Egypt. These beds form a continuous ridge running transversely to the river, and over which it must in former times have poured in a waterfall or rapid, while banks of old Nile mud to the south, at a much higher level than the modern deposit, indicate that its waters were dammed back. The most remarkable fact, however, is that the ridge of sandstone extends for only a few miles, and that farther up the shore again becomes low. This arises apparently from a line of fault extending from east to west, and throwing down the sandstone to the south, as immediately south of it white limestone appears at the level of the river, and must be one of the overlying beds brought down to this level. Thus the Silsilis ridge must have dammed up a wide and long lake, spreading over a large district to the south of it. The rupture of this barrier must have been a slow process, the river cutting gradually through it from north to south; and the waters held in above would gradually drain out, unless, indeed, the last remains of the barrier might be cut away in some unusual inundation or broken by an earthquake shock. In any case the temples of Kom Ombos above the Silsilis dam, and which date from Thothmes III, would appear to have been built after the river had reached its present level, or nearly so.

The most remarkable example of cutting seen in

ascending the Nile is, however, that at Assouan. At this place, as already stated, hard crystalline rocks, apparently belonging to two distinct formations, both of the Eozoic age, appear in the river bed and surrounding hills. These rocks have been deeply and very unequally eroded by weathering and sea action before the deposition of the Nubian sandstone, by which they were eventually covered to a depth of at least one hundred feet. When the Nile began to cut its way through the sandstones its task was similar to that at Silsilis, until it reached the projecting points and ridges of the older rocks, which it was unable rapidly to erode. It then divided into two main branches, running between these hard obstacles. Eventually one of the channels was obstructed at bottom by the hard rocks, and the other being capable of deeper erosion, carried off, as at present, the whole of the waters. The deserted channel remains at the back of the town of Assouan, and is more than fifty feet above the present level of the river in January. Banks of old Nile mud may be seen in it near Philæ and behind Assouan.

Though the gorge of Silsilis must have been cut in prehistoric times, it does not follow that the cutting at the cataract of Assouan is as ancient. On the contrary, as rivers cut back along their beds rather than down from the surface, it is certain that the cutting of the dam at Silsilis must have preceded that of the First Cataract. So to speak, Father Nilus did not know where his First Cataract was to be till he had cut back to Assouan and cleared off the Nubian sandstone from the hard crystalline rocks. But before this could be done the lake south of Silsilis must have been drained by the cutting of the barrier. It is therefore quite

possible that the Egyptian tradition referred to by Herodotus, of the Nile cutting through a barrier within the historic period, may relate to the final cutting of the gorge for the First Cataract and the discharge of water dammed up above that point.

The Nile can have made little appreciable difference in its bed at the cataract within historic times, and its present cutting action must be very slight. The main effect which it seems to have produced is the boring of round 'pot-holes' by the revolution of hard stones and sand under the influence of the current, and many of these seem to have been formed at an early period, when it still had a considerable fall over the Nubian sandstone.

The result of all these complex and long-continued processes is the production of a river valley unique of its kind, and whose beauties grow upon the traveller as he becomes more familiar with it. The bare mud of its immediate bank contrasting with the brilliant verdure of its alluvial plains, its graceful palms, its picturesque and often savage precipices, its contrasts of the barest desert and the most exuberant fertility, and of its sombre remains of perished empires and superstitions with modern squalor and struggling life, its strange modes of culture and irrigation—these are but parts of a picture which as a whole no other part of the world presents.

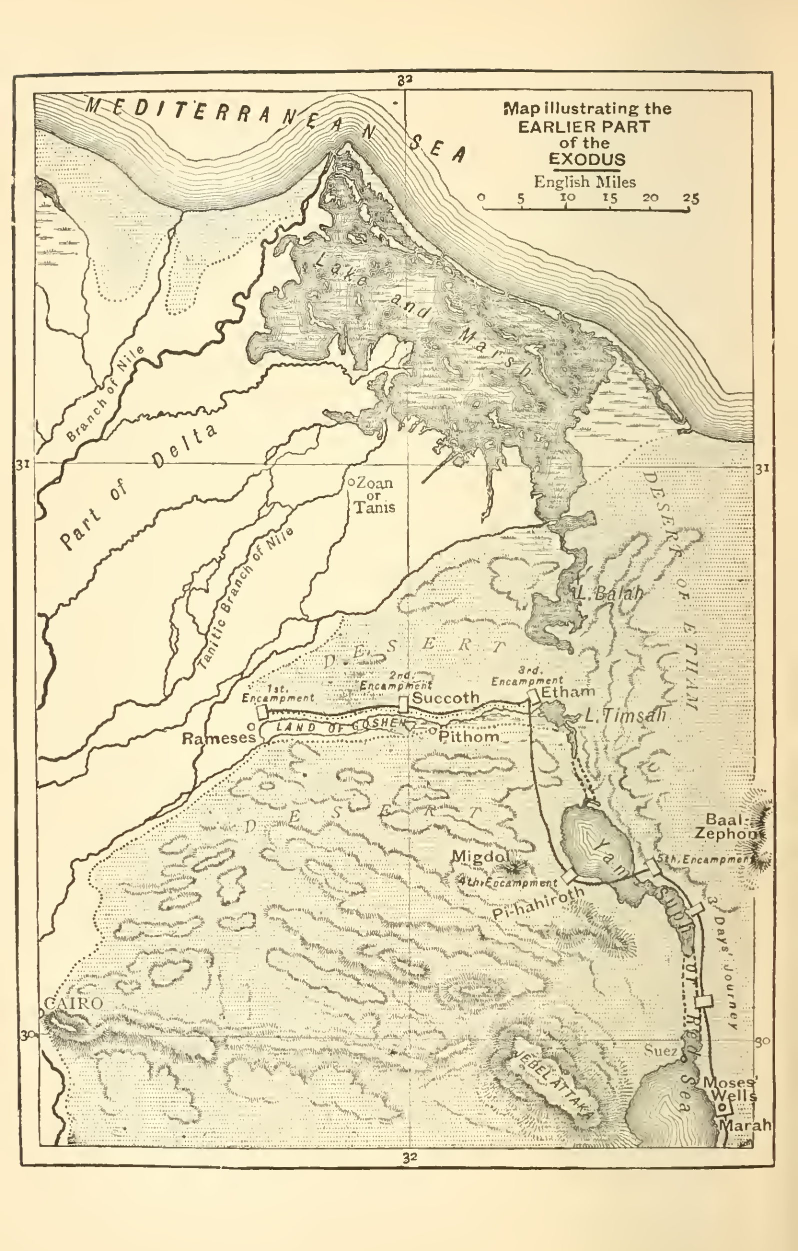
One other question remains. What was the aspect of the Nile valley in a state of nature? In its cultivated portions all is now so artificial and dependent on man that it is difficult to imagine a natural condition of the Nile. The river, the mud-banks, and the rocks no doubt are as they were; but what was the condition of the belt of cultivated ground when the first wanderer

from the cradle of the human race looked out upon it, perhaps from some hill-top of the Arabian range, and ventured with timorous steps to explore the lower grounds bordering the great river? The higher portions of the plain were no doubt occupied with dense and tangled forests of palms, tamarisks, acacias, and sycamores, while the swamps were filled with tall reeds and papyrus, and pools were gay with the beautiful pale-blue lotus. This luxuriant vegetation would contrast on the one hand with the arid desert, and on the other with the verdureless mud-flats recently deserted by the water. We may add to the picture crocodiles basking on the flats or sunning in the shallows, the unwieldy hippopotamus floundering in the waters, antelopes pasturing on the meadows, leopards, wolves, and jackals prowling in the woods and on the margin of the desert, swarms of wild-fowl over the marshes and in the swamps, and multitudes of fishes in the waters. It must have appeared on the one hand a solitude terrible in its luxuriance and its monsters, and on the other a perfect garden of the Lord in its riches and fertility. When to this one adds its strange rainless climate, and the periodical inundations of the river, we can readily understand that such a country might draw out the highest powers and capacities of man in controlling the great river and dealing with a land so strange in its vicissitudes. On the other hand, one can as easily understand its influence in producing a superstitious veneration for certain natural objects as representatives of Divine power and majesty.

But whence and in what way did the first Egyptians enter Egypt, and where did they first settle? A very ancient tradition of their own places their first settlement

at Thinis or Abydos, where was said to be the tomb of Osiris, who is probably the same with the Mosaic Mizraim, son of Ham; and at this place is also said to have been the first seat of the earliest king, Menes, who afterwards extended his sway into Lower Egypt and established a capital at Memphis. Abydos stands at the foot of the Libyan chain, in front of an unusually broad and fertile plain of alluvial soil, where we saw immense fields of beans standing five and six feet in height, and this on soil which, watered by the bountiful Nile so laboriously and ingeniously utilised by the patient Egyptians, has borne similar crops perhaps for 4000 years. It is just where the broad expanse of alluvium extending along the Libyan side of the Nile is narrowed in by that great promontory of the western mountains which lies between it and Thebes, and forces the river to bend abruptly to the eastward, cutting off the alluvial plain. It is opposite the route to the Red Sea at Koseir, and commands the way of access to the Great Oasis on the west. It is, in short, precisely the place where a tribe crossing the Red Sea, and penetrating the Arabian mountains from the east, would be sure to effect a first settlement. So far, therefore, these facts give countenance to the old belief that the first immigrants into Egypt came from the east by way of the Red Sea. This accords also with the importance attached to the ark or sacred boat at this place, as evidenced by the sculptures on the magnificent temples erected here by early Egyptian kings. On the other hand, it may be argued that if the colonists came by the Isthmus of Suez, Abydos is also the place where their upward progress along the valley would be likely for a time to pause. In this case, however, such an advanced post would be

less likely to be a first seat of government, or to have so much sacredness in the eyes of the Egyptians. On the whole, therefore, the historical statements respecting Abydos and its geographical position lend probability to that view which supposes the early colonisation of Epypt to have taken place by way of the Red Sea rather than of the Isthmus, and they also confirm the impression which, as stated in a previous chapter, is produced by other considerations, to the effect that at this early period the Delta was in a condition less favourable for settlement than the Nile valley.


Map illustrating the EARLIER PART of the EXODUS
English Miles
0 5 10 15 20 25
MEDITERRANEAN SEA
Lake and Marsh
Branch of Nile
Part of Delta
Zoan or Tanis
Tanitic Branch of Nile
L. Balah
DESERT OF ETHAM
DESERT
1st. Encampment
2nd. Encampment
3rd. Encampment
Succoth
Etham
L. Timsah
Rameses
LAND OF GOSHEN
Pithom
DESERT
Migdol
4th Encampment
Pi-hahiroth
Yam Suph
Baal-Zephon
5th Encampment
3 Days' Journey
CAIRO
JEBEL ATTAKA
Suez
Red Sea
Moses' Wells
Marah
31
30
32

CHAPTER III.

THE GEOGRAPHY OF THE EXODUS.

NO event in Egyptian history is at all comparable in interest and importance with the Exodus of the Israelites, because this event had more influence than any other on the destiny of mankind. Yet the Exodus has no distinct record in what remains to us of native Egyptian history, and we gather what we know of it from the short narratives in the Mosaic books and the geographical features to which those narratives refer.

In so far as the journey of the Hebrews from the Red Sea to Sinai is concerned, little remains to be done with reference to the geographical details. The admirable work of the Ordnance Survey in the Peninsula of Sinai[1] has for ever settled all questions respecting the Mount of the Law and the way thither. It has done more than this ; for the accurate labours of the scientific surveyor, while they have dissipated multitudes of theories formed by unscientific travellers, have vindicated in the most remarkable manner the truthfulness of the narratives in Exodus and Numbers. Every scientific man who reads the reports of the Survey and studies its maps, must agree with the late Professor Palmer that they afford 'satisfactory evidence of the contemporary character of the narrative.' They prove, in short, that the narrator must have personally traversed the country and must

[1] Ord. Surv. Sinai, Southampton, 1869.

have been a witness of the events he narrates. More than this, they show that the narrative must have been a sort of daily journal, written from time to time as events proceeded, and not corrected even to reconcile apparent contradictions, the explanation of which only becomes evident on study of the ground.

The labours of the Survey did not extend to the route of the Exodus from Rameses to the Red Sea; and on that portion of it some uncertainty existed until a very recent date, more especially in consequence of the theory advanced by the learned Egyptologist, M. Brugsch, who having arrived at the conclusion that the city of Rameses, the point of departure of the Exodus, is identical with Zoan, concluded that the route of the Israelites lay not to the Red Sea, but along the border of the Mediterranean. Fortunately, the recent discovery by M. Naville[1] of the true site of Pithom at Tel el Maskhuta in the Wady Tumilat, when conjoined with the fact that Pithom was the chief city of the district of Succoth mentioned in the Exodus, and that it was one of the two 'store cities,' or garrison towns, that the Israelites are said to have been compelled to build for Pharaoh in the land of Goshen, has thrown a flood of light on the subject. It marks one stage in the Exodus, and also carries with it the consequence that as Rameses must have been one day's march or thereabout to the west of Succoth, it also was in Wady Tumilat, but at the western end of it. Certain ruins at the entrance of the Wady Tumilat, hitherto regarded by many as marking the site of Pithom, are therefore, in all probability, those of Rameses. Further, as the monuments at both places indicate that Rameses the Great (or Rameses II)

[1] *The Store City of Pithom*, London, 1885.

was their builder, the view held by the majority of Egyptologists that this king was the Pharaoh of the oppression is confirmed.

The site of Pithom is distinctly visible from the railway, about twelve miles west of Ismailia, and presents the remains of fortifications and extensive granaries built with crude brick, some portions of which probably date from before the Exodus, though the site was occupied down to Roman times as the chief town of Succoth and an important frontier post. During the construction of the Sweet-water Canal it was also selected as a principal station, and at present it is occupied by Arabs, who cultivate the ground in its vicinity. It possessed a temple erected by Rameses II to the god Ra in his aspect of Tum, in which he represents the setting sun;[1] and certain sculptures connected with this temple exist in a remarkable state of perfection, and are of great interest, as monuments contemporary with the residence of Israel in Egypt, and in transporting and placing which the Hebrew bondsmen were no doubt employed. Some of these monuments have been transferred to the square of Ismailia, and are accessible to every traveller. One of them consists of three sitting figures in Syene granite, rather larger than life. The central one is Rameses himself, and the gods Ra and Tum sit at either side—a remarkable testimony to the pride of a king who literally made himself equal with God. There is also a monumental stone of the same granite, inscribed with the record of the building of the temple, a monolithic sanctuary and sphinx, cut in the brown quartzite of Jebel Ahmar, and two large sphinxes in the porphyritic diorite of Assouan. All these objects are in the

[1] The name of the place, *Pi-tum*, means abode of Tum.

best style of the art of the nineteenth dynasty, and, as set up in one of the chief cities of Goshen, were no doubt badges of the subjection of the Hebrews to the king and to the priestly caste.

It is interesting to notice that Rameses I, the grandfather or grand-uncle of Rameses II, was the founder of a new dynasty, that Seti I and Rameses II, his son, were both constructors of important public works in Lower Egypt, that both carried on great foreign wars, draining the resources of Egypt, and that both were great temple-builders, and devoted to the interests of the priesthood. These facts illustrate the statement



Fig. 11.—Head of Menephtah, the Pharaoh of the Exodus, wearing the double crown of Upper and Lower Egypt. Boulak Museum.

respecting a new king who 'knew not Joseph,' and afford reasons for the hardness of the bondage to which the Israelites were subjected as a foreign people doomed to compulsory labour.

Taking it for granted, then, that the time of the

Exodus was in the reign of Menephtah, the son and successor of Rameses, that the Wady Tumilat was the land of Goshen, or a principal part of it, and that Rameses and Succoth were in this valley, let us study the geographical conditions of the question as they present themselves on an examination of the district, now very accessible by means of the railway from Cairo to Ismailia and Suez, and the principal features of which are represented in the map at the beginning of this chapter.

On the east side of the delta of the Nile, about fifty miles north-east of Cairo, a narrow valley of cultivated soil extends eastward, with desert on both sides, for about eighty miles, or nearly as far as Ismailia, on the line of the Suez Canal where this crosses Lake Timsah. This valley, Wady Tumilat, anciently the land of Goshen, or Gesen, is only a few miles wide at its western end, and gradually narrows towards the east. As the desert sand is, however, encroaching on it from the south, and has, indeed, in places overwhelmed an ancient canal which at one time probably ran near the middle of the valley, it must formerly have been more extensive than at present. The recent surveys of the British Military Engineers[1] also render it certain that this valley once carried a branch of the Nile, which discharged its waters into the Red Sea. This branch, or a canal representing it, must have existed in the time of Moses. At present the valley is watered by the Sweet-water Canal, running from the Nile to Suez; and though probably inferior to the land of Goshen in its best days, it is still one of the most beautiful districts in Egypt, at least in its western part, presenting wide stretches of fertile land covered with luxuriant crops, numerous cattle and sheep, large

[1] Lt.-Col. Ardagh, Major Spaight, and Lieut. Burton, R.E.

groves of date-palms, whose fruit is said to be the best in Egypt, and numerous populous villages ; while it must always have been, what it now eminently is, a leading line of communication between Egypt and the countries to the east.

The position of this valley accords admirably with the scriptural notices of it. It would be the only way of convenient entrance into Egypt for Jacob with his flocks and herds. It was separated to a great degree from the rest of Egypt, and was eminently suited to be the residence of a pastoral and agricultural people, differing in their habits from the Egyptians, and accustomed to the modes of life in use in Palestine. Possibly it may have been thinly peopled at the time, owing to the then recent expulsion of the Hyksôs. The wonder is that the Israelites could have been induced voluntarily to leave so fine a country for the desert ; and this can be accounted for only by the galling nature of the oppression which they were suffering.

We may now endeavour to picture the events of the Exodus as compared with the topography of the country ; and in attempting this I shall take the liberty of stating without elaborate illustration the conclusions which impressed themselves on my own mind in carefully noting the structure of the district, with the narrative of the Exodus constantly before my mind.

At the date of the Exodus, as we are informed in Psalm lxxviii. 12, the court of Pharaoh was held in Zoan, or Tanis, about thirty miles to the north of the land of Goshen. We know from contemporary Egyptian sources that it was not unusual for the Egyptian kings at this period to reside at Tanis, especially when they had affairs of state in hand with the Semitic peoples in

the Delta or with the subject provinces in Western Asia. At the time in question, the disaffection of the Hebrews was itself a good reason for the royal residence being fixed at this place.

Goaded by oppression and stimulated by the exhortations and prophecies of Moses and Aaron, and by their appeals to the traditions of the race, the Hebrew bondsmen had assumed an attitude of passive resistance, and had probably gathered in great numbers at Rameses and its vicinity, a most convenient rallying-place, both for those in the land of Goshen and those scattered over other parts of Egypt. Moses and Aaron passed to and fro between Zoan and Rameses, acting as ambassadors of their people; and it is evident that this state of things continued for some time, neither party venturing to take a decisive step. The reason of this it is not difficult to understand. The king's chariot force assembled at or near Zoan commanded the land of Goshen. Any movement of retreat to the east on the part of the Hebrews could be checked by an advance on their flank. The Hebrews therefore could not move without the king's consent. Knowing this, and knowing also that the beginning of actual civil war might be the signal for rebellion among other subject Asiatic peoples, the king thought it best to temporise. It seems also very probable that the invasions of enemies from the west, which we know occurred in the reign of Menephtah, had obliged him to deplete or remove his garrisons on the eastern side of Egypt, thus giving a comparatively easy means of departure to the Israelites. Such considerations, evident from the history of the time, serve to account for the attitude taken up by the fugitives and the policy of the king. In such cases of political deadlock Divine

Providence often cuts the knot. It was so in this instance.

The continued plagues inflicted on Egypt at length produced such discontent among the people that the king was forced to let the Hebrews go. The mandate was no sooner given than it was acted on at once and in haste. No time was to be lost, for if Pharaoh should change his mind he still had the Israelites in his power for two days' march at least. Beyond that distance they might hope to be out of his reach. The camp at Rameses was therefore broken up; and, gathering their countrymen as they passed, and receiving from the Egyptians gifts and contributions in lieu of the property they had to leave behind, the host hurried on to the eastward, executing apparently in one day a march of twelve to fifteen miles. This is a long march for such a body of fugitives; but their haste was great and their tribal organisation good; and their powers of walking may be supposed to have resembled those of the present fellahs of Egypt. They are said to have reached the district of Succoth, and to have encamped within its limits, probably to the west of Pithom; and there is no more likely place for this encampment than the neighbourhood of Kassassin, where there is abundance of forage and water, and a defensible position, reasons which weighed in our own time with Sir Garnet Wolseley in selecting this as a halting-point in his march on Tel-el-Kebir. Meeting with no molestation or pursuit, they continued their march on the following day, and encamped at Etham, on the edge of the desert, or on the edge of the desert of Etham, at the eastern end of the Wady Tumilat. We learn from Numbers xxxiii. 8 that all the desert east of the present Suez Canal was called

the desert of Etham ; and the 'edge' of this desert on the route followed by the Israelites must have been near the present town of Ismailia, at the head of Lake Timsah, then perhaps truly a lake of crocodiles, as its name imports, and sweetened by the waters of the Nile. The name Etham is usually supposed to imply the existence of a fortification or garrison at this place ; but there is no reason in the narrative to warrant this idea, and Naville is probably right in supposing the word to be the Egyptian *Atuma* applied in an ancient papyrus to a district in this region, and meaning a margin or borderland.

Probably the encampment was not far from the present Nefish station, a little west of the town of Ismailia ; and it is worthy of note that here the desert presents, in consequence of its slight elevation above the bottom of the wady, a better defined 'edge' than usual. From slight elevations of the desert surface at this place the bold front of Jebel Attaka can be seen in the distance, with the intervening lower range of Jebel Geneffeh, and the green and now partly swampy flat of Wady Tumilat in the foreground. When at Ismailia we rode over this ground, and could imagine the Hebrew leader looking out from the sandhills behind his encampment with anxious eyes, to the east and south, where his alternative lines of march lay, and to the west, whence Pharaoh's chariots might be expected to follow him.

At this point the desert portion of the journey direct to Palestine begins ; and here, between Lake Timsah and Lake Ballat, is the highest part of the isthmus and the best road out of Egypt to the east. Encamped at this place the people would be for the moment safe. Pharaoh could no longer attack them in flank, and if he

approached from the west, a small body of resolute men could hold him in check, while the rest should flee eastward into the desert.

But here a new and at first sight strange order is given to the fugitives. They are not to go any farther eastward in what seems the direct road to Canaan, lest, as we are told, when opposed by the Philistines—at this time subject to or allied with Egypt—they should not have courage to advance. They are to turn to the south, at right angles to their former course, along the west side of Lake Timsah and the Bitter Lakes, the latter, as we shall see, then probably the northern end of the Yam Suph or Red Sea. This would have the temporary advantage of keeping them for a little longer within reach of water and pasturage, but the great disadvantage of obliging them at some point to the southward to cross the Red Sea, an operation which they might hope to perform if unmolested and with abundance of time, but not otherwise. The explanation given to Moses is that by this movement 'God is to be honoured on Pharaoh and his host,' but in what way is not stated beforehand.

In executing this apparently retrograde movement Moses appears to have kept in view, as heretofore, the wisest means to protect his people in all events, and without reference to any possible miracle. And here I would note that the gathering at Rameses, the holding the people in readiness for instant motion, the march by the Wady Tumilat, and the position taken up at Etham, are all vindicated by the ground as good and wisely planned strategical movements. Moses and the elders of Israel were not mere waiters on Providence. They were men of thought and of action. In moving to the

south his flank would again be exposed for a time, but in the course of a few miles he would enter the narrow pass between the elevation known as Jebel Geneffeh and the Bitter Lake, and would again be protected on both flanks against the attack of a chariot force. This position of vantage he might reach in one day's march, and beyond this he would still be protected for several miles until the flat country opens out into the desert of Suez, when he would again be exposed to attack from the west, and would besides be in a district destitute of water. There can therefore be little doubt that he must have halted somewhere in the narrow plain between Geneffeh and the Bitter Lake, where he could hope for a time to make a stand against his pursuer and wait the development of events. Here accordingly, as we are informed in the narrative, at the close of the day's march in the evening, the chariots of Pharaoh were seen to be advancing in pursuit. Pharaoh had no doubt watched by scouts the march of the Israelites, and when he learned that they had turned to the south he at once decided to pursue them, interpreting their change of direction as caused by dread of the desert which had 'shut them in,' and judging that, hemmed in by the sea, they were entirely at his mercy. A glance at the little sketch-map on p. 66 will show the precise nature of the movement from Etham to Pi-hahiroth and the strength of the latter position; and the sketch at p. 63, taken from a short distance south of the probable site of the Etham encampment, will show that the nature of the country to the southward is clearly visible from that point.

The full responsibility of his position was now upon the leader of the Exodus. He had, it is true, passed over the perilous open country between Etham and the

defile of Geneffeh; but here he must make a stand. If he could repel the attack of Pharaoh, protected as his flanks were by the sea on one side and the mountains on the other, he might hope to gain time to transport his people over the narrowest part of the sea to the south. But if he failed in this, he would be driven into the open and waterless desert to the southward, and would be at the mercy of his foe, unless he could force his march thirty miles farther, and take up a position on the heights of Jebel Attaka, where, however, he would be destitute of water. But the children of Israel were in no mood to fight for their liberty, and it appears from Exodus xiv that they were prepared rather to surrender and return to Egypt. Moses remonstrated, and assured them that the Lord would fight for them; but it was of no avail, and when he 'cried unto the Lord' the order was given to plunge into the sea and cross it. The people who would not fight were willing to flee, even into the depths of the sea. They had faith in God as the ruler of nature and as the God of their fathers, though their long bondage had made them cowards as regarded the Egyptians; and their faith was rewarded by a miraculous passage, in regard to which a 'strong east wind,' driving the waters before it, is especially mentioned as a secondary cause. This was in all probability a north-east wind rather than due east, and co-operating with a receding tide, would tend to produce an unusual recession of the waters. But here arise several questions which deserve our attention. Before attending to these, however, let us summarise the narratives in Exodus and Numbers, that we may fully understand the movements of the Hebrews and the strategy of their leader, as above described.

The command to depart was given by Pharaoh 'in the night,' and the people were 'thrust out, and could not tarry,' so that they broke up early the next morning. 'And the children of Israel journeyed from Rameses to Succoth, about 600,000 men, besides children;' and a 'mixed multitude' of Egyptian slaves went with them. They 'pitched in Succoth,' that is, within the boundary of that district. 'They departed from Succoth, and pitched in Etham, which is in the edge of the

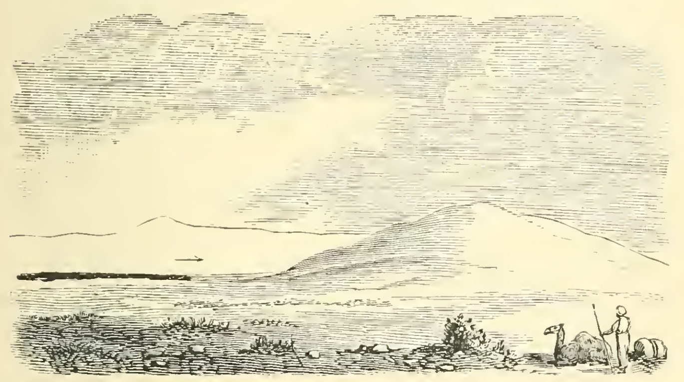


Fig. 12.—View of Migdol (Jebel Shebremet) and the Sea from the North, with the range of Jebel Attaka in the distance. From a point on the probable route of the Israelites after leaving Etham.

wilderness' of the same name. But God led them not 'the way of the land of the Philistines,' 'lest peradventure the people repent when they see war, and they return to Egypt. But God led the people about, the way of the wilderness of the Red Sea.' So they were commanded to 'turn' or 'turn back,' and to march to 'Pi-hahiroth,' which is near the sea 'between Migdol and the sea,' or 'before Migdol,' and 'over against' or opposite to 'Baal-zephon,' which was probably on the

opposite side of the sea. Here it was that the Egyptians came upon them.

A preliminary question here is as to the cause of the despair of the Hebrews, when they found that they were pursued. The force employed against them was not large. It is stated as six hundred chariots, each probably carrying two men. It must, however, be borne in mind that this kind of force was the most formidable known at the time, and that the Egyptians were accustomed with it to rout great hosts of half-disciplined and poorly-armed infantry. It was also in all probability only the advance guard of a much larger army, and intended to bring the Israelites to bay until the Egyptian infantry could close upon them. There was cause therefore for alarm, though Moses had evidently at every stage of the march selected positions suited to give his army, if it may be so called, the greatest possible advantage.

A still more important question is as to the precise locality where the Hebrews were overtaken, and where the crossing of the sea occurred. It is evident, in the first place, that no important town or city existed at the locality. This is implied in the description given and in the character of the names employed. The place of this great event was so important that care was taken to define it by mentioning three points, presumably well known to the narrator; but this method implies that there was no one definite name for the locality. All the names employed are Semitic, and not Egyptian, except perhaps the prefix 'Pi' in one of them. Pi-hahiroth may have been a village, but its distinctive character is that of 'place of reeds'—a reedy border of the sea, near the embouchure of fresh water from the Nile, or Sweet-water Canal. Migdol cannot have been, as supposed by

some, a fortified place. It would have been madness, with Pharaoh in their rear, for the Israelites to have encamped near such a place. It must rather have been a commanding height used, as the name implies, as a watch-tower to command an extensive view or to give signals. Baal-zephon—'the Lord of the North'—is generally understood to have been a mountain, though both Jebel Attaka and the northern peak of Jebel er Rabah may lay claim to the title. In any case, the place so named by Moses was 'opposite' to the camp of the Israelites, and consequently across the sea.

After somewhat careful examination of the country, I believe that only one place can be found to satisfy these conditions of the Mosaic narrative, namely, the south part of the Bitter Lake, between station Fayid on the railway and station Geneffeh. Near this place are some inconsiderable ancient ruins, and flats covered with *Arundo* and *Scirpus*, which may represent Pi-hahiroth. On the west is the somewhat detached peak known as Jebel Shebremet, more than 500 feet high, commanding a very wide prospect, and forming a most conspicuous object to the traveller approaching from the north. Opposite, in the Arabian desert, rises the prominent northern point of the Jebel er Rabah, marked on the maps as Jebel Muksheih, and which may have been the Baal-zephon of Moses. Here there is also a basin-like plain, suitable for an encampment, and at its north side the foot of Jebel Shebremet juts out so as to form a narrow pass, easy of defence. Here also the Bitter Lake narrows and its shallower part begins, and a north-east wind, combined with a low tide, would produce the greatest possible effect in lowering the water.

This conclusion I have endeavoured to indicate on the

rough map and bird's-eye view accompanying this chapter. It may be further observed as an incidental corroboration that the narrative in Exodus states that after crossing the sea the Israelites journeyed three days and found no water. From the place above referred to, three days' journey would bring them to the Wells of Moses, opposite Suez, which thus come properly into

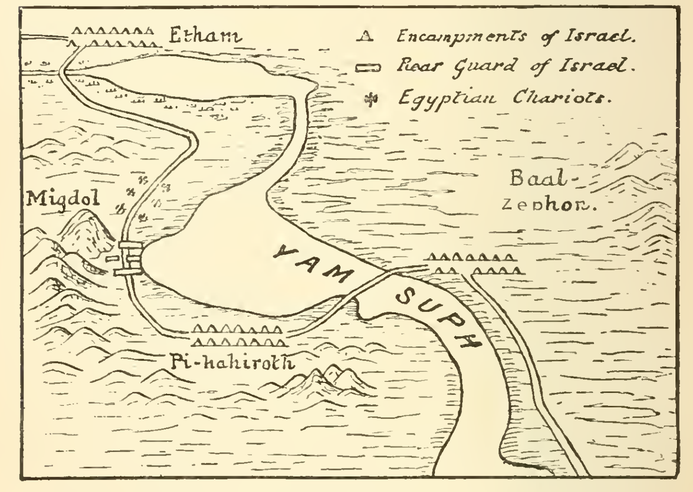


Fig. 13.—Bird's-eye View illustrating the Crossing of the Red Sea.

place as the Marah of the narrative, whereas the ordinary theory of a crossing at Suez would bring the people at once to these wells. They are also said to have journeyed for three days in the wilderness of Etham, and then to have come to the wilderness of Shur, or 'the wall,' whereas the wilderness of Shur is directly opposite Suez, and not three days' journey to the south.[1] The three

[1] Compare Ex. xiii. 20, Ex. xv. 22, Num. xxxiii. 8. After crossing the

days' journey from the place of crossing would not be long journeys, the whole distance being about thirty miles; but there was now no reason for haste, and the want of water would not be favourable to long marches.

The question has often been raised whether, at the time of the Exodus, the Red Sea extended farther north than at present. In answer to this it may be stated, in the first place, that the terms of the narrative in Exodus imply, and the geological structure of the country proves, that there must have been a land connection between Africa and Asia north of Ismailia, at the place which is now the highest point of the isthmus. Further, without entering into details, I may say that there are also good geological reasons for the belief that there has been in modern times a slight elevation of the isthmus on the south side, corresponding to the slight depression known to have occurred on the north side. It seems also certain that in the time of Moses a large volume of Nile water was during the inundation sent eastward toward the Red Sea. There is therefore nothing unreasonable in supposing that, as assumed in this chapter, the Bitter Lakes at the time of the Exodus constituted an extension of the sea. Further, such an extension would be subject to considerable fluctuations of level, occasioned by the winds and tides. These now occur towards the head of the sea. Near Suez I passed over large surfaces of desert, which I was told were inundated on occasion of high tides and easterly winds, and at levels which the sea now fails to reach there are sands holding recent marine shells in such a state of preservation that not many centuries may have elapsed

Red Sea they journeyed through the wilderness of Etham into the wilderness of Shur, and in three days encamped at the wells of Marah.

since they were in the bottom of the sea. Since my return to England I have found that Professor Hull takes nearly the same view with reference to the condition of the isthmus at the time of the Exodus, which has also been advocated by Ritter and by Mr. Reginald S. Poole; and which appears to be strongly confirmed by the inscriptions discovered by Naville at Pithom. Since, however, there are still objections advanced to this conclusion, which has been severely criticised in some American publications of recent date, it may be well to state the facts on which it rests, as shortly and clearly as possible.

1. The central elevation of the isthmus, which may be termed its nucleus, is that known as El Gisr ('the threshold'), immediately north of Lake Timsah, and which in some places attains a height of 90 feet. This has undoubtedly been land since the Pleistocene period, and must throughout historical times have connected Asia and Africa.

2. This central line constitutes a sort of axis or pivot on which the isthmus has, so to speak, revolved—its northern side gradually subsiding down to very modern times (see Chap. I), and its southern side gradually rising. In proof of this, Lake Menzaleh on the north has submerged many ancient sites, while south of Lake Timsah the ground, nowhere more than a few feet above high water in the Red Sea, and for the most part lower than that level, is composed of recent deposits, holding modern Red Sea shells. At one place only, Chaloof, about ten miles north of Suez, there is an underground ledge of Miocene rock which had to be cut through in forming the Canal; but a depression of a few feet would enable the sea to overcome this obstacle and flood the whole

low country as far as the Bitter Lakes. That such depression did exist, within the modern period, the shell deposits amply prove.

3. The precise date of these changes relating to human history, geological evidence alone cannot decide, nor can the width of the isthmus, as given by Herodotus and other ancient authors, since there are different ways of measuring this width, and the isthmus has been losing on the north what it gained on the south. Besides, such measurements are evidently loose and inaccurate, and do not extend very far back in time.

4. There is, however, some evidence available. I attach much importance to the fact that the extensive deposits of Nile mud in the Wady Tumilat prove the flow in ancient times of a considerable branch of the Nile eastward into the Red Sea. This conclusion, which I had reached independently from a study of the district, my friends Col. Ardagh and Col. Scott Moncrieff, who are the best possible authorities, informed me that they considered certain. But a very slight elevation or silting up of the Red Sea would obstruct this arm of the Nile and impair the water communication and the fertility of the district. Of such results we have no evidence till the reign of Seti I, some time before the Exodus, when it became necessary to cut a canal through the Wady Tumilat, and this canal had to be re-opened and extended to the southward by successive rulers down to the Roman Period, as the difficulty of maintaining it increased. Since we have seen that the last important depression of Lake Menzaleh occurred about 100 years before the Arab Conquest, it is not unlikely that the last elevation to the southward took place about the same time, and closed the canal entirely until re-opened in modern times.

5. M. Naville, in his explorations at Pithom, has discovered some interesting confirmatory facts. He finds that a place called Pi-kerehet lay at no great distance eastward of Pithom, and supposes that this may be the Pi-hahiroth of Exodus. He also finds that down to Roman times Pithom, or Heroöpolis as it was called, is described as near to the Red Sea, which must to some extent have been navigable up to Lake Timsah. Naville is disposed to place Pi-hahiroth, and consequently the place of crossing, still farther to the north than the Bitter Lake, or between this and Lake Timsah. I regret that this did not occur to me when on the ground, otherwise I should have made an effort to explore more particularly the country referred to, and to test the theory whether the ruins now called the Serapeum, or the hill known as Gebel Mariam, may be the Migdol of Exodus. My impression however was and still is that these places are too near to Etham, and too distant from the probable site of Marah, to fulfil the conditions of the narrative. It is also to be noticed that if this should prove to have been the place of the crossing, it would imply that the Israelites were brought to bay by Pharaoh and driven eastward off their track at an early stage of the march from Etham, while the narrative would rather imply that they had completed the march and had reached a defensible position, or at least one commodious for encampment.

6. There are two statements in Exodus and Numbers which have always appeared to me to fix the meaning of the author of the narrative, who has been found in other cases scrupulously accurate in his geographical statements. The first is the opinion attributed to Pharaoh when he heard of the southward march from Etham, that the Israelites were entangled in the land, that the wilder-

ness had shut them in. Unless the Red Sea or some other impassable obstacle existed south of Lake Timsah, or unless he was surprisingly ignorant of the geography of his own country, he could not have formed this opinion. The second statement referred to is that to which I have alluded above, in the use of the terms Etham and Shur, and the three days' journey before reaching Marah, which I take to be the wells of Moses opposite Suez, though I know the site is usually placed farther south. Putting together the statements in Exodus and Numbers, we find the first desert encampment at Etham, on the border of that desert. Then, after crossing the Red Sea, we find the people still in the desert of Etham, and journeying in it three days into the desert of Shur to the south. Now if the desert of Etham is that of the Atamu, or borderland of Egypt, and the desert of Shur, or the wall, is that bounded by the wall of the escarpment of the Tih,[1] and if the wells of Marah are the first great springs that issue from the base of this escarpment, we have a clear and accurate topographical description, given in few

[1] I do not think it necessary to discuss the theory of an artificial wall extending from the Red Sea to the Mediterranean and giving rise to the name of Shur or wall. There is an antecedent improbability in the name of the desert being derived from any such erection, and there is no hint of such a structure in the record. Some writers on the subject seem to believe that the fact of the slight elevation at Chaloof near Suez being of Tertiary rock, effectually precludes the idea of its having been under the Red Sea in modern times. But of course such an argument can have no geological weight, since there is no conceivable reason why this, any more than other rocks, should not have participated in the slight and probably gradual elevation which the head of the Red Sea has experienced, and which has apparently continued into historic times. These gentlemen have no doubt been misled by trusting to observers who have failed to distinguish between phenomena of elevation and those of erosion.

It is due to the eminent English Egyptologist, Reginald S. Poole, to say that, at least as early as 1860, he had anticipated in his sagacious commentary on the Exodus in Smith's *Bible Dictionary* these results, which are now rendered so plain by the discoveries of M. Naville and the study of the geographical features of Eastern Egypt.

words, but in a manner to emphasize the first journeys in the waterless desert and the first experience of the brackish desert springs, so different from the sweet water of the Nile.

I regret the necessity of this long discussion. In a little book like the present, it is necessary to state results rather than to enter into argument. My excuse is the evident misapprehension of the subject by those who have criticised my previous statements: though I fear that even the above explanations will be insufficient, without an actual examination of the ground.

In conclusion of this part of the subject, a word may be said of the names of the Red Sea. In the Bible the sea crossed by the Israelites is the 'Yam Suph,' or sea of weeds.[1] This name I would attribute to the abundance of the beautiful green water-weed (*Ceratophyllum demersum*), which now grows very plentifully at the mouth of the Sweet-water Canal, and was probably much more abundant when a branch of the Nile ran into the narrow extension of the Red Sea now forming the Bitter Lakes. The name Red Sea is of later origin and seems to have been derived from the colour of the rocks bordering its upper part. The Eocene and Cretaceous limestones assume by weathering a rich reddish-brown hue, and under the evening sun the eastern range glows with a ruddy radiance, which in the morning is equally seen on the western cliffs, while these colours contrast with the clear greenish-blue of the sea itself. Such an appearance would naturally suggest to early voyagers the name 'Red Sea.'

[1] It has been objected to the use of this name for the Red Sea, that in Kings it is applied to the Gulf of Akaba. But it is likely that in later usage it was the name of both gulfs of the sea.

Another point of inquiry relates to the reasons why the army of Israel did not cross the neck of land between Lake Timsah and the Bitter Lakes rather than go farther south. A sufficient reason for this may appear to be the command to pass southward to the Red Sea, that God's purpose with reference to the Egyptians might be fulfilled. But if we look for prudential or strategical reasons in addition, these may be found in the difficulty of crossing at this place in face of an approaching Egyptian army, even if crossing there was practicable, which the considerations above stated render at least doubtful, and in the possible existence of Egyptian garrisons in this part of the isthmus, where at other periods they are known to have been posted. With reference to this last consideration, it has often been overlooked that the King of Egypt was, about this time, obliged to meet a serious invasion of Libyans and other peoples on the west, and that this may have compelled him to withdraw or weaken his garrisons in the east. This would give special facilities to the movement of the Israelites, and was a providential aid in their favour, while the particular places in which such weakening or removal had occurred may have acted as a determining cause in certain movements.

If we were to judge from the probable requirements of the circumstances, we might infer that the garrisons ordinarily kept at the fortified cities in Goshen had been removed, that the Philistines, then subject to Egypt, had been entrusted with the guardianship of the highest point of the isthmus, the regular route north of Lake Timsah, and that garrisons had been retained south of that lake, while they had been withdrawn from the eastern side of the Red Sea. In any case, it seems

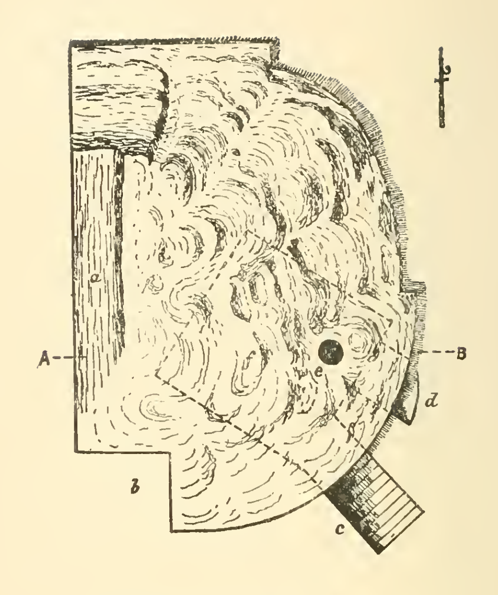
certain that movements of this kind, necessitated by the military exigencies of the time, must have considerably affected the early stages of the Exodus.

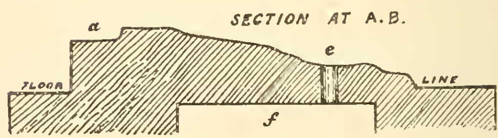
The recent revelations of the Egyptian records give us the right to affirm in this connection that a remarkable preparatory provision was made in the providence of God for the deliverance of His people by political and military events altogether beyond their control. The campaigns of Rameses II in Western Asia, extended as they were all the way to the banks of the Orontes, must have greatly weakened the Hittites and other nations of Canaan, while at the same time they created depletion and discontent in Egypt itself. The reign of Menephtah was harassed by the invasions of the Delta, to which reference has already been made; and though these were repelled, this must have been with much loss to the Egyptians, and the eastern fortresses which held the Israelites in subjection must have been depleted of their garrisons. All these circumstances must have conspired with the increasing severity of the oppression to facilitate the mission of Moses and Aaron.

I think that the above statements and reasoning may carry to the mind of the reader the convictions they produce in my own, that we now know pretty fully the conditions and circumstances of the early stages of the Exodus, and are prepared to appreciate, more clearly than ever before, the manner in which this great movement, so lasting in its moral and religious consequences for the whole human race, was carried out by the counsels of God and by the leader whom He had raised up.

NOTE.—Dr. Kellog's *Lectures on Abraham, Joseph, and Moses*, which have reached me while these sheets are going through the press, contain some interesting references to the facts of the Exodus. The reader may also refer to the Report of the Ordnance Survey on Sinai, to Naville's *Pithom* and Trumbull's *Kadesh Barnea*, and Palmer's *Desert of the Exodus*. (See Appendix, p. 204.)







The Sacred Rock in the Mosque of Omar. Plan and Section. (From a model executed by C. Paulus of Jerusalem.)

a. Step on West side. *b*. Notch in S.W. angle. *c*. Entrance to cave. *d*. Smaller opening to the same. *e*. Round aperture in roof of cave. *f*. Section of cave, but not showing the irregularities of the roof and sides.

CHAPTER IV.

JUDEA AND JERUSALEM.

THE coast of Judea is for the most part low, sandy, and uninviting in appearance, but rises here and there into slight elevations, breaking its monotony; while inland of the sandy margin there are green and fertile plains, backed by the rounded masses of the hills of the interior. On one of the coast ridges stands the town of Jaffa. Its white houses, rising one above the other from the beach to the summit of the hill, present a most imposing appearance from the sea, and, with the surrounding verdure of its orange groves, justify the old name *Yafo*, 'beauty.' A reef of sandstone rock stretching in front of it shelters such apology for harbour as it possesses. The voyager who arrives off this ancient port when a heavy sea is setting on the shore, may be thankful when he gets safely to land, even if his experiences of the narrow, ill-kept, and dirty streets of the town are of the least agreeable character.

Jaffa, the Joppa and Japho of the Bible, is the old seaport of Jerusalem, and in the palmy days of the empire of Israel must have been a place of much commercial importance. It was, indeed, the principal port on a long line of coast extending all the way from the frontiers of Egypt to Mount Carmel, which is remarkably destitute of bays and inlets. This fact,

and the further circumstance that the ports north of Carmel were held by the Phœnicians, contributed in ancient times to isolate Judea from the commerce of the Mediterranean, and to debar the Jews to a great extent from maritime enterprise. There is nothing to indicate that its harbour was ever much better than at present, though the sheltering reef may have undergone some diminution; and it does credit to the Phœnician mariners that they succeeded in landing at this place the rafts of cedar for the building of the Temple and palace of King Solomon. The reader of the Books of Kings and Chronicles will, however, observe the emphasis which King Hiram puts on the landing—'I will cause them to be discharged there,'—and the fact that Solomon contracted for this at the risk of the Tyrian, limiting his own responsibility to the land carriage to Jerusalem.

Jaffa shares with its more northern rival, Cæsarea, the interest of that remarkable interview of Peter and Cornelius, which opened the kingdom of heaven to the Gentiles. The house of Simon the tanner, where Peter was instructed by a vision that nothing was unclean, is still shown to the traveller; but, like most of the sacred sites of Palestine, it has no certain evidence to authenticate it. The house is now used as a small mosque, the Moslems having a great penchant to utilise Christian sites. It has a good well in its courtyard, and commands from its roof a fine view of the sea, one of the physical barriers separating at that time the Jewish from the Gentile world. The house may be that of Simon, but if so, his tannery was probably outside of the town, where the modern tanneries are situated, for Jaffa still produces some leather. In any case the house of Simon is sufficiently suggestive, and it is interesting

to think, while standing on its roof, how the West is now paying back its debt to the East, by means of the many noble men and women from Britain and America now working as missionaries in Syria.

From the higher parts of Jaffa one may obtain a good idea of the physical characters of the maritime plain of Southern Palestine. Along the shore stretch banks and dunes of yellow sand, contrasting strongly with the deep blue of the sea, and shading off on the east into the verdure of the plain. Near Jaffa this is covered with orange orchards, laden in February with golden fruit of immense size, which forms one of the most important exports of the place. To the south the plain spreads into the fertile flats of ancient Philistia, interspersed in the distance with patches of sand, the advanced guards of the great Arabian desert. To the north it constitutes the plain of Sharon, celebrated in Hebrew song, and extends for fifty miles to where Mount Carmel projects its high rocky front into the sea. On the inland side, the plain is bounded first by the rolling foot-hills of the Judean range, the Shephelah or low country of the Old Testament, and then by the hill country proper, which, clothed in blue and purple, forms a continuous range, limiting the view eastward from Jaffa.

The rock on which Jaffa stands, and which extends under the whole of the maritime plain, is a soft sandstone, sometimes traversed with vermicular cylindrical holes, perhaps the work of marine worms, and characteristic of these recent formations not only here but in the isthmus and at Beyrout. The sandstones are sometimes coarse and pebbly, and often contain marine shells of the same species with those still living in the neighbouring

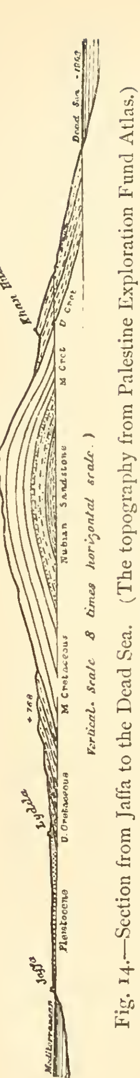


Fig. 14.—Section from Jaffa to the Dead Sea. (The topography from Palestine Exploration Fund Atlas.)

sea. The cementing material of the sandstone is carbonate of lime, and, like the similar modern sandstone of Suez, it is sufficiently hard to be used for building purposes. In some places on the road to Ramleh, it is seen to pass into a conglomerate, or pebble-rock, composed of rounded fragments of the limestone of the hills; and a boring recently made near Jaffa passed through 53 metres of the sandstone, below which was clay containing marine shells, more especially a species of *Cardium*.[1]

These deposits are mostly of the Pleistocene age,[2] or that which immediately preceded the advent of man, and they belong to the same series with the similar deposits which extend all the way along the head of the Mediterranean from beyond Alexandria to Beyrout, and which also occur around the Red Sea.[3] At the time when they were formed the sea stood 200 feet or more above

[1] My informant was Dr. Paulus of Jerusalem.

[2] I observe that Prof. Hull has been able to separate from the more modern beds above described, an underlying sandstone possibly of Eocene or Miocene age, and has found undoubted Eocene beds with Nummulites along the base of the Cretaceous Judean hills. These beds are however more evident along other lines of section than that from Jaffa to Jerusalem.

[3] Lartet, Fraas, Schweinfurth. See also Notes by the author, *Geol. Mag.* of London, 1884.

its present level, and washed the bases of the hills all the way from Southern Judea to the Lebanon, separated Asia from Africa, and extended far up the Nile valley. At present these beds form an undulating plain, in many places of great fertility. It is twenty-five miles wide near the frontier of Egypt, twelve to fifteen opposite Jaffa, and runs off to a point at Carmel. Its southern part was the headquarters of the Philistines, whose frequent wars with the Israelites of the inland hills occupy so large a portion of the Bible history. Along this plain was the great highway from Egypt to the North, traversed alternately by the armies of Egypt and Assyria, which naturally avoided the rugged and impracticable Judean hills. The maritime plain was also a granary for these invading armies, and it still produces much wheat and barley, though large portions of it are neglected and untilled, and the culture carried on is by means of implements as simple and primitive as they could have been in the days of Abraham. In February we found it gay with the beautiful crimson anemone (*A. coronaria*), which we were quite willing to accept as the 'Rose of Sharon,' while a little yellowish-white iris, of more modest appearance, growing along with it,[1] represented the 'lily of the valley' of Solomon's song.

Ramleh, about twelve miles south-east of Jaffa, occupies an important position near the inland side of the plain, and at the point where the road from Jaffa to Jerusalem crosses the great main line of communication along the plain from north to south. It is seemingly not a very ancient place, the neighbouring town of Lydda having been its representative in ancient times,

[1] Probably *Iris Caucasica*.

and its identification with the Arimathea of the New Testament being uncertain; but it was a place of great importance at the era of the Crusades, and its lofty campanile, which is not improbably a monument of that time, and intended as a watch-tower, commands a grand and instructive view of the whole plain from the sea to the hills, and far to the south and north.

Beyond Ramleh we enter on a country of low hills, and pass from the Pleistocene beds to the Upper Cretaceous limestone, which, with perhaps some Eocene beds, is here seen to dip gently toward the west; and their outcropping edge constitutes a low ridge, separated from the main body of the hills, also composed of Cretaceous limestone only a little older, by a valley which here bears the historic name of Ajalon. Standing on the slight escarpment of this ridge—the ancient Shephelah—one can see across this valley to the opening from the pass of Beth-horon in the opposite hills, down which Joshua pursued the Canaanites when he raised the siege of Gibeon after his remarkable night march from Gilgal, and drove the besiegers from the roads to their own strongholds down into the plain—a feat which broke the Canaanite defence in the middle, and placed the whole of the south of Palestine in his hands, opening at the same time his way to the Sharon plain and the sea-coast. This was perhaps the most striking military achievement recorded of Joshua, and it is scarcely rendered more wonderful by the abnormal prolongation of the daylight for which he prayed, and which the poetical author of the Book of Jasher has recorded in verses which have long formed a stumbling-block to prosaic Western interpreters.

We now enter on the steep and narrow valleys which

lead from the Shephelah to the watershed of the Judean hills on which Jerusalem stands. These hills, rugged though they are, have not been produced by any violent fractures of the earth's crust. The beds of Cretaceous limestone, of which they are composed, constitute a great flat arch or anticlinal, sloping gently to the Mediterranean on the west and to the Jordan valley on the east, and the hills have been cut by the sea and the torrents out of the nearly horizontal limestone beds, as a cameo is cut out of the layers of an agate or of a shell. Thus they present the appearance of successive terraces, meandering along the sides of the valleys, and rising one above another into rounded eminences. The aspect thus impressed upon the hill-sides is of a most peculiar character, and suggests the idea that this natural terracing must have given to the early inhabitants of the country the hint of that system of culture in terraces which prevailed in ancient times, when these now bare and desolate hills were clad with vines and olives. In some places, as near Kolonieh on this road, and at Bethlehem, where this culture still exists in perfection, one can realise the appearance which the country must have presented in the old Hebrew times, and, in connection with the value of the produce of the olive tree and vine, the large population it may have supported.

The description of the hills on this road given by Dr. Fraas is so graphic that it deserves quotation:[1] 'Chalk marls, hard white limestone, and beds of dolomite alternate with each other and form great steps on the mountain sides, such as I have nowhere else seen in equal beauty. The edges of the beds, three to ten feet thick, stand out like artificial walls, enclosing

[1] *Aus dem Orient.*

the hills. Olive-trees and shrubbery overhang these natural ramparts, while the softer layers form slopes covered with green herbage, which is still richer in the moist hollows.' It will be observed that this rugged Judean country presents a much more attractive appearance to the German geologist than to the ordinary traveller, to whom the hills seem mere irregular masses of stone.

It is also to be observed, that though on these hills there may be little soil. and that of a stony quality, this soil is of the most fertile character, and especially adapted for fruit-trees and vines. The manner in which the German colony at Jerusalem is improving the apparently hopeless stony country between that place and Bethlehem, and rendering it productive, is a remarkable indication of this. It seems to have been customary in ancient times to store part of the produce of these hills on the ground, as there are everywhere in the ledges and cliffs small caverns excavated or enlarged by art, and which, while too small to have been occupied for residence, may have served as places of storage, or possibly, in troublous times, of concealment of the crops. A curious example of this practice occurs in the case of the ten men mentioned by Jeremiah, who said they had wheat, barley, oil, and honey 'hid in the field,' and were spared by the tyrant Ishmael on account of these treasures.

We ascend these hills through narrow valleys, on the sides of which here and there are beds filled with characteristic Cretaceous fossils.[1] The villages and ruins of

[1] More especially there are white limestones with *Radiolites* and large *Ostreæ* and other bivalves. Other beds are filled with shells of the genus *Nerinæa*. These beds seem to correspond with the so-called Radiolarian zone of Fraas in the Lebanon, and are well seen half way between Ramleh and Jerusalem.

old towns are perched on heights, and often at points suited to command the road through the valleys, indicating the fact that defence was and is of more importance than convenience, and reminding us of the wars and raids that have raged along the borders of the hill country of Judea from the times of the old Philistines till the present day. Even now, under that happy union of oppressiveness and imbecility which characterises the Turkish Government, the heavily taxed villager or farmer is obliged to be his own guard and policeman. Every person that one meets on the road is armed with a rifle, musket, pair of pistols or cimetar, or with some combination of these; or, failing any of them, with the round-headed club which, since the days of David, seems to have been the shepherd's weapon in this country.[1] One is at first a little alarmed by the approach of these armed travellers, but we soon find that they are by no means aggressive, and that their arms only express their own fears of attack.

The hills of the Shephelah rise somewhat suddenly from the plain to heights of about 400 or 500 feet, and then gradually ascend ridge after ridge to the summit of the Mount of Olives, 2693 feet above the level of the sea; but this is by no means the maximum height of this great flat-backed ridge, which forms the backbone of Western Palestine.[2] To the south of our line of section it attains near Hebron a height of 3300 feet; and northward it rises to a still greater elevation in the mountains of Samaria, before it gives off the oblique spur of Mount Carmel to the north-west. Beyond this

[1] The Shaivet, 'rod' or 'sceptre' of our version—literally a club. See Psalm xxiii, where the word is translated 'rod.'

[2] Measurements by the Palestine Exploration Survey.

it sinks into the plain of Esdraelon, to rise again in the hills of Galilee, and farther north to culminate in the great ridge of Mount Lebanon, which ascends to a height of 10,000 feet. Throughout all this extent the hills consist of Cretaceous limestone, ridged up in the centre and cut by valleys and ravines at the sides, so that it may be compared to the backbone of an animal, with its ribs spread out at either side. The later Eocene limestones, which are so grandly developed in Egypt, are represented in Palestine only by small patches ; and from a comparison of these formations in the Nile valley, in the Red Sea, in Judea, and the Lebanon, I am of opinion that there was an original difference, thicker deposits having taken place in the Cretaceous period in Syria than in Egypt, and precisely the reverse in the Éocene age.[1] Much of the physical difference between the two countries depends on this circumstance.

It is interesting to observe that this hill country, with the valleys descending from it, and the great Jordan valley to the east, was specially the land of the Israelites in their settlement in Palestine. The empire of David and Solomon was, of course, much more extensive, but it included peoples of other races. The Philistines seem always to have retained their hold of the maritime plain as far north as Jaffa, and the Phenician territory included the greater part of the seaboard north of Carmel, while the Esdraelon plain was a thoroughfare of nations. On the east of the Jordan the possessions of the Hebrews were somewhat precarious, and were limited by Moab and Ammon on the south and Syria on the north. It is also to be observed that the chief seats of the dominant tribes of Judah and Ephraim were on this great ridge of

[1] See notes in the *Geological Magazine*, 1884.

Western Palestine. Another feature of the occupation of Palestine by the Hebrews indicated by modern facts, as well as by the statements in the Book of Joshua, is that while the Israelites were the landed proprietors and the leading people of the cities, many of the original Canaanites remained as serfs and labouring people in the more secluded districts. The fellaheen of the southern districts still resemble Egyptians, and are probably, in great part, descendants of the Philistines.[1] Those of Judea have the features of the old Canaanites, as represented on the Egyptian monuments, and are probably of the ancient pre-Mosaic stock, which seems to have repossessed itself of the land on the expulsion of the Hebrews.

At Jerusalem we are on the summit of the ridge separating the Mediterranean slope from the more abrupt descent to the Dead Sea and the Jordan valley. The surface of the Dead Sea is 1292 feet below the level of the Mediterranean, while Jerusalem is 2590 feet above that level, and consequently no less than 3880 feet above the great depression which lies to the east of it. The city occupies a little promontory, connected on the north with the main table-land of the summit of the hills, and separated on the east and west by deep valleys from the neighbouring eminences. The promontory itself is divided by a furrow, the Tyropean valley, into two unequal portions, so that it may be compared to a cloven-hoof, with one toe longer than the other. The longer or western toe, separated from the adjoining hills by the Gihon or Hinnom valley, is that which is usually identified with the ancient Zion, and on which the greater

[1] Who were allied to the Egyptians, being derived, according to Moses, from Caphtorim, Gen. x. 14.

part of the city now stands, and its southern part must have been the site of the old Jebusite town, which was so strong that it retained its independence till the time of David. The smaller, or eastern toe, separated by the

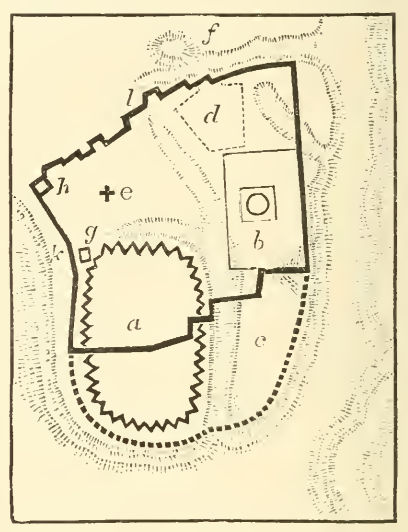


Fig. 15.—Sketch plan of Jerusalem.

a. Zion and old Jebusite city. *b*. Temple area. *c*. Ophel. *d*. Subterranean quarries. *e*. Church of the Holy Sepulchre. *f*. Supposed Golgotha. *g*. Tower of David. *h*. Tower of Goliath. *k*. Jaffa Gate. *l*. Damascus Gate.

The present wall is indicated by a heavy black line, the old South wall by a dotted line, and the supposed position of the wall of the original Jebusite town by a zigzag line. The Tyropean valley is seen running up the middle of the city, and forking towards the north, and the Damascus gate is nearly opposite its north end. East of the city are the Kedron valley and the Mount of Olives.

deep Kedron valley from the Mount of Olives, is that of Moriah and Ophel, and on it stands the quarter known as Bezetha, and the great area of the Mosque of Omar, once the site of Solomon's Temple. Jerusalem is so

near the watershed of the country that while the Kedron brook runs into the Dead Sea, another streamlet, not more than a mile to the west, is one of the heads of a river emptying into the Mediterranean. Geologically, however, it is on the eastern side of the ridge of the hill country, for the beds underlying it all dip eastward. This commanding position, in connection with certain minor topographical details, to be mentioned in the sequel, accounts for its importance as an ancient Amorite stronghold, and also for its selection by David as his capital. The mountains round about Jerusalem were no inapt emblem of security, and when the Psalmist uses them to typify God's protection of His people, he is not merely indulging in a poetical fancy; for Jerusalem, seated on its rocky ridges and surrounded by a broken country difficult of access and easy to defend, possesses one of the strongest positions of any capital in the world.

It is remarkable also for its facilities for water supply. In addition to the collection of rain-water in tanks, which is now the principal source of supply, it possesses springs, the waters of which were carefully husbanded and guarded, as in the case of the celebrated Siloam tunnel passing for 1750 feet under the Moriah and Ophel hills and conducting the water of the remarkable intermitting spring known as the Virgin's fountain into what was the southern part of the ancient city, though now outside the walls.[1] This intermitting spring is probably the true pool of Bethesda of the Gospel of John, and is still believed to possess healing virtues. But the great ancient supply came from the hills to the south, where are immense springs and the magnificent pools

[1] See King's *Recent Discoveries on the Temple Hill*, pp. 180 et seq.

of Solomon, whence two aqueducts led to the city, pouring into it a great stream of water at a height sufficient to reach even the upper parts of the town, and to keep the immense pools and cisterns constantly filled. The whole area occupied by Jerusalem is small, and it is very closely built. One can walk around it in an hour, and in its greatest days the city cannot have been more than twice or thrice as large. Its area is now about 200 acres, and the population between 20,000 and 30,000.

The geologist, on inspecting such a site, at once thinks of its original condition and of the causes of the features which it presents. The former is not difficult to realise, for though there has been some filling of hollows with débris and some scarping and walling up of slopes, the relief of the surface is too decided to be easily obscured.

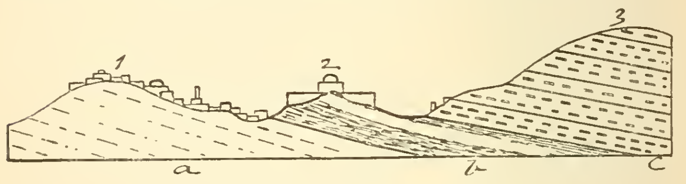


Fig. 16.—Section of the site of Jerusalem.

1. Summit of Zion. 2. Summit of Moriah. 3. Mount of Olives. *a*. Middle Cretaceous limestone, grey, red, white. *b*. Softer white limestones, including the bed of *Malaké*. *c*. Upper Cretaceous limestones and marl, with flint.

and the excavations of Col. Warren and his colleagues have sounded the depths of most of the masses of rubbish. The clue to the latter is most easily to be found in the dip of the rock, as seen in the great quarries and excavations in the eastern ridge, which show that we have a general easterly dip, and consequently an ascending series from Zion to the Mount of Olives, the outcropping edges of the harder beds forming the ridges

and the cutting out of the softer layers producing the valleys.

The rock of the Western or Zion hill is a hard, reddish and grey limestone, much used for building and paving stones, and capable of taking a good polish. It is called *Misie* stone, that is, hard or resisting. It contains a few fossil shells (*Ammonites*, *Turritellæ*, &c.), and belongs, apparently, to the middle part of the Cretaceous system. On this rests the limestone of the Moriah hill, which contains some thick beds of softer white stone of close texture, and well adapted for the finest purposes of architecture. This is the *Malaké*, or royal stone, employed in the best buildings of ancient Jerusalem. The Mount of Olives consists of still higher members of the formation, limestones and marly beds, with many layers and nodules of flint. In the upper part of this series, farther to the eastward, there are numerous *Baculites* and other shells and scales of fishes.

Jerusalem, small though it is, has been the most important city in all the world in connection with the influences emanating from it, and its topography and history have been subjects of interest to numbers of intelligent travellers and explorers from the time of Josephus to the present day. Yet on many of the points raised much difference of opinion still exists. I shall select from these three leading questions, on which the geological structure of the district may throw some light, and which, if satisfactorily answered, may tend to elucidate other difficulties. These are, (1) The great subterranean quarries under the northern end of the city. (2) The rock under the Mosque of Omar, and from which it has been named 'the Dome of the Rock.' (3) The site of the hill called Golgotha, on which our Lord was crucified.

(1) At first sight it seems singular that, when all the hills about Jerusalem are composed of solid limestone rock, the quarrymen should have sought for building material by burrowing under one of the elevations on which the city stands. But this is readily accounted for by the structure of the several ridges. The hard *Misic* stone of the Zion hill is difficult to extract in large blocks, and somewhat refractory in working, besides being very unequal in colour; the stone of the Mount of Olives is mostly of soft flaky quality of the kind called *Kokulé*,[1] and it is injured by the frequent flinty bands which it contains. It is only under the intervening Moriah ridge and its continuation to the north that there is a thick bed of the pure white *Malaké*, compact in quality and durable, yet easily worked. This is a finely granular stone, and under the microscope is seen to be composed of grains of fine calcareous sand and organic fragments cemented together. It is not, like some of the limestones of the region, an actual chalk, composed of Foraminiferal shells, but is really a very fine-grained white marble. This stone was probably first quarried in the open air at the northern end of the temple ridge, outside the city wall. Here a great cut has been made entirely across the ridge. It separates the knoll containing the so-called grotto of Jeremiah from the rock under the city wall, and adds greatly to the strength of the latter, while it must have afforded a very large quantity of good stone. That this work is ancient is, I think, apparent from the fact that this point is the most accessible source of good building stone, and that its excavation gave the only means of defending effectually the temple ridge from attack from the north.

[1] Probably equivalent to 'cake-stone' or 'flaggy-stone.'

It is true that the wall which stands on this scarped rock is of Saracenic date—in great part at least: but there are portions of it near the Damascus gate of the old jointed masonry peculiar to the ancient Jews, which must have belonged to the Herodian times at least, if not to those of the Jewish kings.

The recent unearthing of the ancient foundations of the Kasr Jalud, or tower of Goliath, at the north-west corner of the city, which were kindly pointed out to me by my friend Dr. Merrill, fixes another and most

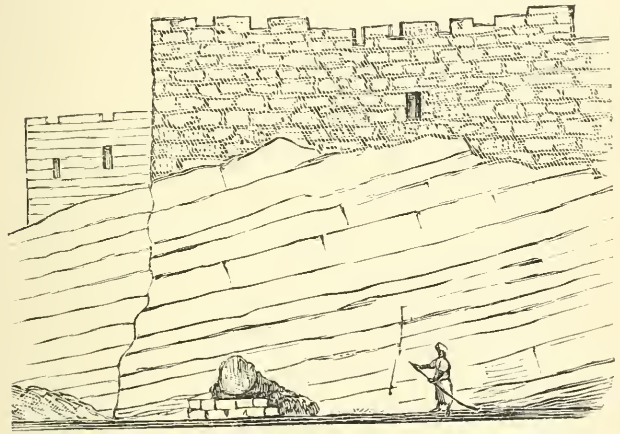


Fig. 17.—Cliff and city wall at the entrance to the Royal Quarries, showing the dip of the limestone.

important part of the north wall, and I think conclusively proves that the present north wall of the city is very nearly in the line of that second wall of which Josephus speaks, and which was, to a large extent, the work of Uzziah and Hezekiah.[1] This being granted,

[1] 2 Chron. xxvi. 2, and xxxii. 5. Recent discoveries of the foundation of part of the old west wall, connecting the towers of David and Goliath, have been described by Dr. Merrill, and confirm this conclusion.

we can understand the nature of the great subterranean quarries. The ancient workmen, having cut through the ridge outside the city wall, and having also quarried out the grotto of Jeremiah, were obliged to turn to the south to follow the bed of good stone; but here they had to go underground. both to escape the necessity of removing hard and unprofitable material from the surface, and to avoid disturbing the city wall and the buildings within it. They began these excavations immediately under the city wall. at one of the highest parts of the ridge, and entered by a moderately sized opening, which could easily be walled up, and which is now partly closed by accumulations of earth and modern building.[1] But once underground, their work expanded into wide and lofty galleries, like those of the old Egyptian quarries of Turra; and supporting the roof by pillars of the stone, they excavated a very large area under that part of the town known as Bezetha, and lying to the north of the temple area. The workings follow the bed of valuable *Malaké* stone, which dips east-north-east at an angle of about 10°. The mode of quarrying has been the same with that pursued in Egypt, each block of stone being isolated by narrow incisions made all around it. In this way large square blocks were obtained, which required little subsequent dressing, and a very small amount of waste remained in the quarry. It was a tedious but very effectual and economical method, and one specially adapted to the operations of an underground quarry. This method also illustrates the Scripture statement that the stones of the temple were shaped in the quarry before being brought to the building.

[1] These excavations are called Mugharat el Kettan or Cotton Grotto—a name perhaps originating in the radical idea of 'covering or hiding,' from which kettan and cotton are derived.

Blocks partly disengaged show the manner in which the work was done, and remain as if the quarrymen had left their work but yesterday, while the roof and pillars are in most places in so good preservation that the quarry might be reopened at any time with very little expense. A spring at one side of the workings has had a little cistern cut to receive its waters, and looks as fresh as if the old workmen might return to it to-morrow. Fragments of their rude clay lamps may be seen near it, and little niches cut to receive them in the wall, to light the men at their work and at their mid-day meal. Nothing has been found in these quarries to indicate the date at which they were last worked; but they are probably the caverns in which the wretched remnants of the garrison of Jerusalem are said to have taken refuge after the siege by Titus, and their great extent and the character of the stone show that they were the source of the vast amount of material used by the Jewish kings from the time of Solomon to that of Herod in the construction of their great buildings.

These quarries are, indeed, sufficiently large to have supplied much more stone than is apparent in all the ancient buildings of Jerusalem, gigantic though these are.[1] They must have furnished those great stones—'stones of ten cubits and stones of eight cubits'—employed in the construction of the temple and in the palace of Solomon; and these stones were suitable, not only for the massive foundations of these buildings, but for all their finer and more ornamental work. The characters which have been found painted on some of the stones of the retaining wall of the temple are be-

[1] It is deserving of note that the great cisterns under the temple area are excavated in this same kind of rock.

lieved to be masons' marks made by Phœnician workmen, probably some of those commissioned by King Hiram to assist Solomon in his great works. They probably relate to the dimensions of the stones, which, as we learn from 1 Kings vii. 9, were delivered 'according to the measures of hewed stones'; and, as this statement is connected with the mention of their great cost, we have a right to infer that they were paid for by the cubic cubit.

The manner in which the stones were extracted from these quarries is not certainly known. The present entrance in the rock outside the wall has been quite large enough for the purpose, but it seems not unlikely that there may have been a ramp or tramway by which stones could be rolled or slid up to the temple area. It would seem difficult in any other way to have moved these stones into their position. The corner-stone of the 'great course' of masonry at the south-east angle of the temple area is said by Warren to weigh 100 tons, and, though this is exceptional, there are many others nearly as heavy.

(2) On the highest part of the old temple area, the 'Haram,' or enclosure, as it is now called, and immediately under that great dome, the most conspicuous object in Jerusalem, which covers the so-called Mosque of Omar, is a rough projection of the natural rock enclosed within a railing, and at first sight appearing to be quite an incongruous element in such a structure. It has, however, evidently constituted the determining cause of the erection of the noble building which covers it, and which derives from it the name of 'Kubbet es Sakhra,' or 'Dome of the rock.'[1] The rock is

[1] Its proper name. It is not really the Mosque of Omar, and it is even questionable if it is a Saracenic building.

simply a portion of one of the harder grey beds of the natural summit of the hill, and consequently has been in its present place before the erection of any buildings, so that it must have been for some reason left intact at the time of the original levelling of the ground for the temple of Solomon—a fact which gives to it great historical significance. It is approximately semicircular in outline, with the curved side, which slopes downward, on the east, and the straight side, which is higher and cut off square, to the west. This corresponds with the general dip of the rock of the ridge. It is about 60 feet in its extreme length and 50 in its greatest breadth, and rises in its highest part a little more than 4 feet above the surrounding pavement.[1] Under the south-east portion there is a roughly-hewn chamber of square form excavated in the rock. With this three openings communicate, namely a stairway leading down from the pavement, a small irregular opening near it, and a round hole on top. This cavern is high enough to enable one to stand upright, and its paved floor sounds hollow as if there were an additional cavity below. The direction of the western side of the rock is north-north-west, or parallel to the longest sides of the temple area. The surface of the rock has evidently been prepared at the west and east sides for building stonework on and against it. The west side is cut down perpendicularly, and has a square notch cut out of the south angle; and above the perpendicular face the upper surface is cut into a decided shelf sufficiently wide to receive a stone wall. The lower eastern side is less modified, but the semicircular edge is cut even, and has two slight rectangular breaks in its continuous curve; and on the surface flat

[1] 4 feet 9½ inches. See Frontispiece of Chapter.

spaces and step-like notches are cut into the stone. The entrance to the cave beneath is evidently modern, but the hole near it and the round opening in the top appear more ancient. On the whole, this sacred rock would seem to be an original portion of the natural surface of the ledge, slightly modified by art, and having under a portion of it an old granary or cistern, which was probably excavated before the temple was built.

One of its minor features which I did not observe, and which is not represented on the model made for me by Mr. Paulus, is a round basin toward the North end, and apparently similar to those seen in sacrificial stones in Palestine and many other parts of the world. This is at about the highest part of the rock and near to a little groove or hollow which may have been made as an approach to it. A figure of this by Mr. William Simpson is given in the quarterly statement of the Palestine Exploration Fund for April, 1887. It may indicate that the rock was an ancient sacrificial stone of the Canaanites.

Setting aside altogether the superstitious fables attached to this rock by the Moslems, and which are retailed in every description of Jerusalem, it seems certain that it was contained within the courts of the Jewish temple, and that it was left intact when the remainder of the surface was levelled. This would imply that it was a place hallowed by religious associations in the time of Solomon, and intended to be preserved in his temple. Now it seems evident from the Old Testament history that the Solomonic temple was built on the ground acquired by David from Araunah the Jebusite, and on which his great sacrifice was

offered on occasion of the plague.[1] It is to be observed also that on this occasion David solemnly dedicated this place to the worship of God and as 'an altar of burnt-offering for Israel.' Nothing is more likely therefore than that it continued to be a place of sacrifice from that time, and that it was retained as the site of the altar of burnt-offering in Solomon's temple. Since this altar had, according to the Mosaic law, to be constructed of unhewn stones, and placed upon the natural surface of the earth, a portion of the rock would be left in its original state, except in so far as it might require to be modified to receive the stones of the altar, and to afford accommodation for any structures surrounding it. This appears to me a much more likely explanation than that which supposes the rock to mark the position of the holy of holies, with respect to which there was no necessary appropriateness in a natural unhewn rock.

In the Talmudic description of the great altar, as translated by Bishop Barclay and Dr. Chaplin, it is stated that the altar was 32 cubits square at its base. It had a cistern or drain below its south-west end, with two holes in the altar above leading to it, and an opening to allow a man to descend to clean it. There was a sloping ascent at the south side. The unhewn stones of which the altar was built were naturally squared blocks obtained at a place called Beth-cerem. If we suppose the west side of the rock to have coincided with the west side of the altar, and the face of the notch at the south-west side to have marked the limits of its south side, and the sloping ascent to have been at the east and south sides, this would agree very well

[1] 1 Chron. xxi, xxii. The cave below may have been the granary of the threshing-floor, and the place where Araunah and his sons 'hid themselves.'

with the form of the rock, except that the drain is at the south-east side. It would also place the front of the altar toward the west where the sanctuary stood.

If the Sakhra really represents the great altar of burnt-offering, it fixes approximately the position of the temple and its inner courts. The temple itself, with its lofty porch or propylon, must have greatly resembled those of Egypt, and must have stood toward the west side of the area. In front of the propylon was the great altar, in the middle of the inner court. The whole structure must have occupied the central portions of the great Haram area, which is 1500 feet long by 1000 feet wide, and was surrounded, in the later temple at least, by lofty colonnades. This great area is a magnificent building site. Its north-western corner is composed of levelled rock. The rest has been filled up to a level or supported on the great series of arches known as Solomon's Stables, though they are probably of Herodian date. The outer wall is an immense structure of great square stones, built up in some places, as shown by Warren's excavations, to the height of 120 feet. It had several entrances, some of them ascending by ramps or inclines through the great wall and the filling within; and beneath it are immense excavated cisterns, said to be capable of containing ten millions of gallons of water.

The masonry of the retaining wall of this great area is a magnificent work of hewn stones, with marginal drafts, and beautifully fitted. This is at least the character of its older and lower portions. Every stone of the buildings that once crowned it has been thrown down, and their rubbish lies everywhere against its sides. The buildings now upon it are all of dates no older than the Christian era. Some of the entrances

are probably as ancient at least as the Herodian time. The so-called double gate on the south side is one of the most interesting. It opens at the base of the great enclosing wall, and passes upward for 200 feet by two parallel arches, at the end of which were stairways leading to the surface of the area. In the porch at the entrance of these tunnels is a column strikingly Egyptian in appearance and with a capital of palm leaves, or, as some interpret them, rows of acanthus. This double gate would present great facilities for the entrance and egress of processions or crowds of worshippers, and brings vividly before us that old time when the tens of thousands of Israel went up to worship here, singing perhaps those beautiful 'Songs of Degrees' which still form the best expressions of many types of religious emotion.[1] There has been much discussion as to the age of the great temple area; but the recent explorations seem to have established the Solomonic age of the whole eastern wall; and, though there are some differences of structure on the south side, there seems no reason to doubt that the substructure actually prepared by Solomon included the whole, or nearly the whole, of the present Haram area, a work comparable in magnitude with the greatest of the Egyptian pyramids, and superior to them, when considered as the mere foundation of magnificent buildings which have wholly perished, and when taken in connection with the vast contrivances for water supply which exist beneath it, and which were connected originally with the high-level aqueduct conveying water from the springs in the Judean hills south of the great Pools of Solomon. There is, however, no reason to doubt the statement of Josephus

[1] Psalms cxx. to cxxxiv.—Songs of ascent or of going up.

that the great plan conceived by Solomon was completed by subsequent kings, and that large portions of the wall may have been repaired and rebuilt after the captivity or even as late as the extensive restorations undertaken by Herod the Great.

If we are right in placing the altar of burnt-offering on the Sakhra, the Temple of Solomon must have stood nearly in the middle of the Haram area, on the same platform which now supports the Mosque of Omar. Its tower-like propylon would thus rise a little to the west of the present dome, and, like it, must have been the most conspicuous object in every view of the city. The courts in front of the temple must have extended nearly to the west wall of the temple area, while, as we learn from the Mishna, wider spaces lay to the south, north and east, the whole of which were, however, probably surrounded with the long cloisters of Herod's temple. We thus, I think, obtain, by starting from the sacred rock as representing the great central altar, a more definite idea of the temple, and one more in accordance with the statements of ancient authorities, than on any other view. We also obtain a most interesting identification of an old historic site. For, though we cannot certainly affirm that the Sakhra is the rock on which Abraham offered Isaac, we can with the greatest probability connect it with the highest point of old Araunah's threshing-floor, and with that sacrifice of David which first gave to the Temple Hill its character as a place sacred to the worship of God.

(3) We come now to the most interesting and at the same time one of the most vexed of the questions connected with Jerusalem, namely, the place of the Crucifixion and of the Sepulchre of Jesus. On this subject,

though I would desire to speak with all caution and diffidence, owing to the limited nature of my opportunities for observation, yet as a mere question of topography, I cannot believe that the position of the so-called 'Church of the Holy Sepulchre' is consistent with the requirements of the narratives in the Gospels. I am aware that several eminent modern authorities, as Williams, Bovet, Ganneau and Warren, have argued for the genuineness of the site, and have endeavoured to sustain it on topographical grounds; but they require most unlikely positions of the north wall of the city, and limit its size too much for the population it possessed in the time of our Saviour. I have already shown, on the evidence of the excavations and old walls on the north side, that, even in the time of the Jewish kings, the site of the Church of the Sepulchre must have been within the city,[1] and though Ganneau has found that there are old tombs under the church, these are of a style which, as Conder has shown, is entirely different from that of Christ, and belonging to a far earlier date.[2] There is besides abundant evidence that old tombs of this kind existed within the city before the beginning of the Christian era. But the question requires a consideration, first, of the narratives we have in the New Testament, and next, of the existing sites which answer to the descriptions there given.

[1] Any other position of the north wall of the city between the north-west angle and the ridge east of the Damascus Gate would be most objectionable for defensive purposes, and no remains of any such inner wall have been found. It is also certain that a considerable space north of the present city was covered with buildings and walled in by Herod Agrippa only eleven years after the death of Christ. It follows that in the time of Christ the site of the Holy Sepulchre Church must have been surrounded by the city.

[2] They are 'Kokim' tombs, cut endwise into the rock. Ganneau, Wilson, and Conder, *Palestine Survey, Jerusalem*, pp. 319 et seq.

It is evident that the writers of the Gospels had no wish to establish holy places, and hence they have given little attention to details of topography. Yet their short narratives, with subsequent notices in the Epistles, serve to establish certain important points, which are the more valuable since they are mere incidental notices. They inform us that the place of crucifixion was outside the city wall, but nigh to the city; that it was near to a road or roads leading from the city into the country, and therefore in the vicinity of one of the principal gates; that it was an elevated or conspicuous place, though not said to be a hill in the sense in which Zion or the Mount of Olives could be called hills; that there were gardens or tombs very near to it, or 'in the place,' and inferentially that it was near to that side of the city, the north side, in which the Prætorium, or Governor's palace, and Roman barracks were situated.[1]

These indications are sufficient to show, in connection with the preceding statements as to the original wall of the city, that the present church, as marked in the plan on page 88, cannot occupy the site of Calvary; but they give little guidance as to the true position, except to indicate that it was probably on the table-land north of the city, and near to the road leading from that gate, always one of the most important in Jerusalem, which opened to the north near the middle of the city wall, and opposite the end of the Tyropean valley, which bisected the city. The site of this gate is marked by the present Damascus Gate, formerly called the Gate of St. Stephen, because the oldest tradition points to his martyrdom outside of that gate, though another gate on the east side of the

[1] Dr. Fisher Howe has summed these up with great care in his work on the *True Site of Calvary*, New York, 1871.

city is now called by his name. The Damascus Gate is probably the 'old gate' of Nehemiah.

There is, however, one positive indication given by the Evangelists which is of the greatest significance, and that is the name which they all agree in giving to the place of crucifixion. This name is *Golgotha*, 'the skull,' and in its Greek form *Kranion*, translated by the Latin *Calvary*. Three of the Evangelists translate the name as meaning 'skull-place.' Luke gives it simply as 'skull.' There is no reason to suppose that the name arose from skulls being there, which, indeed, would have

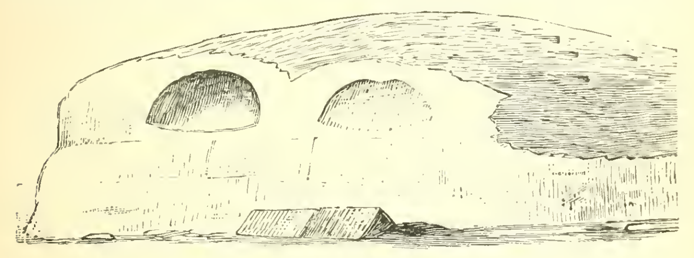


Fig. 18.—Front of the 'Skull Hill,' near Jeremiah's Grotto.
This is a very hasty sketch representing the appearance at a time when the light was favourable for developing the two eyes. See other sketch (19).

been very unlikely, considering the laws and habits of the Jews; and the name is not 'place of skulls,' but 'skull-place,' or 'skull.' The most probable reason of the name is that the place was a knoll or rising ground, which by its form suggested the idea of a skull, and so received that name. Now, there happens to be outside the north wall of the city, but near to it, about one hundred yards distant, a knoll of rock of rounded form and covered with shallow soil and grass (the same referred to above as that left by the ancient quarrymen, and containing the so-called Grotto of Jeremiah), which

in its form and certain old tombs, which simulate sockets of eyes, has a remarkable resemblance from some points

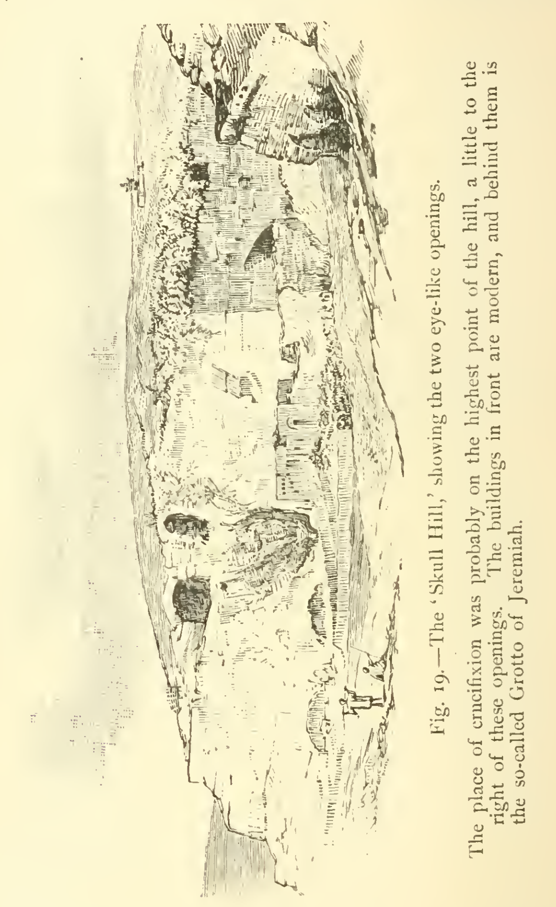


Fig. 19.—The 'Skull Hill,' showing the two eye-like openings.

The place of crucifixion was probably on the highest point of the hill, a little to the right of these openings. The buildings in front are modern, and behind them is the so-called Grotto of Jeremiah.

of view to a skull partly buried in the ground. This resemblance has suggested itself to many observers, in-

dependently of any supposition that it is Golgotha. It is true that such resemblances depend very much on point of view and direction of light. But these conditions, as is well known, add to the effect. for it flashes out upon us suddenly and strikingly when least expected; and it is this that excites the popular imagination, and often gives rise to a name. The rough sketch in Fig. 18 is such an impression produced by a favourable light. The more accurate representation in Fig. 19 shows less of the skull aspect, but gives more clearly the topography of the hill, the whole face of which is at this point an artificial cliff, produced by ancient quarrying, though it can be ascended by a gradual slope from the northern and eastern sides.

Jewish traditions, first ascertained by Dr. Chaplin, and cited by Conder, show that this hill was anciently used as a place of execution, and it is not improbably the place where Stephen the proto-martyr was stoned. It is now quite unoccupied, except by some Moslem graves. It is further to be observed that this place fulfils all the other indications of the Evangelists. It is near to the city, between the ancient roads leading from the Damascus Gate and Herod's Gate, not distant from the site of the Prætorium, and having gardens and tombs close to it. It is also so situated as to command a view of the whole city and the temple, and of the amphitheatre of surrounding hills, and there is no other place which fulfils all these conditions. I have already referred to the able argument of Dr. Fisher Howe in favour of this site. He quotes Van de Velde, Otto Theniers, Robinson, and others, in support of his view; and I found that my friends Dr. Merrill and Dr. Chaplin of Jerusalem, who are thoroughly acquainted with the

topography of the city, were of the same opinion, and it was also adopted by the late General Gordon, who had carefully surveyed the ground, and had caused a model of the hill to be prepared by the sculptor Paulus,[1] of which I have a copy now before me, which, as one turns it around and exposes it to different lights, admirably shows the peculiar and often startling effect of the features of the skull. I visited the place several times, and I confess became more and more impressed with the certainty that here, on this now neglected knoll, we have the actual place where the greatest of all historical events, that which more than any other attracts the eyes of all nations to Jerusalem, actually occurred ; while the swarms of ignorant but pious pilgrims who annually visit Jerusalem are deceived by a fictitious holy place surrounded with false traditions, tinsel shows, and superstitious ceremonies. Perhaps it is well that, so long as cunning priesthoods make a trade of Christ, they should not be permitted to have the true locality to give colour to their impostures.

The settlement of the site of the crucifixion would settle that also of the tomb of Joseph of Arimathea, for John informs us that 'in the place was a garden,' and in the garden a tomb. Now it so happens that to this day little gardens occupy the level ground at the foot of the skull knoll, and on the borders of these gardens are tombs. One of these, which I visited with Dr. Merrill, on the west side of the hill, and at the edge of a little garden of beans, is of particular interest, as recalling very nearly the probable appearance of the new tomb of Joseph. According to the Gospels, this was small, and of one chamber, allowing the body to be

[1] See General Gordon's *Reflections in Palestine*.

seen from the door. The door was low, so that one had to stoop to look in, and it was closed by a circular stone arranged to be rolled in a groove so as to open and shut the entrance, like that still *in situ* at the great 'Tombs of the Kings,' or 'Tomb of Helena,' north of Jerusalem. The tomb referred to was a single low chamber excavated in a ledge of rock, with a marble slab now placed on edge to form a bin, but which seems at one time to have stood on stone supports, like a couch. The

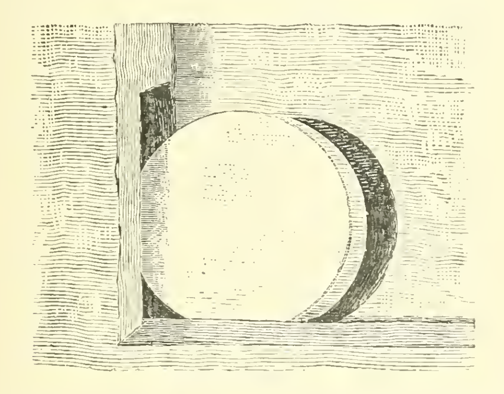


Fig. 20.—Door of a Sepulchre, with rolling stone, as seen at the so-called 'Tombs of the Kings.'

entrance had no door, and was too large to have been closed by a rolled stone, but there were some signs that it might have been enlarged. It is now obstructed by accumulated earth, which has considerably raised the level of the ground since it was cut. I confess that this neglected tomb was a more impressive memento of that into which Mary, John, and Peter looked on the morning of the resurrection, than the marble-lined and decorated chamber in the Church of the Holy Sepulchre.

But there is no need to search for the actual tomb of Joseph. The pretended shrine satisfies the devout crowds of to-day; and when a higher type of Christianity shall be revived in these old lands, there will be no need either of empty tombs or gaily decorated shrines to excite devotion.

The Jerusalem of the present time is a strange and difficult enigma. Not wholly ruined, still inhabited, still a great centre of pilgrimage, it has escaped the fate of many ancient capitals and holy places; yet it is shorn of its former glory, and in its filth and squalor, and destitution of any wealthy class, or of any political status, and in the decay of its ancient buildings and appliances for health and comfort, it is in some sense more than a ruin, while it has become, not a centre of pure religion, but of Moslem and anti-Christian superstition. What is the future of Jerusalem and Judea? That it is expected to have an important bearing on the destinies of the world is evident from the anxiety of the great European nations to obtain a footing in the country. Russia, France, and Germany are rivalling each other in purchasing property, erecting buildings, and otherwise strengthening their hold on Palestine. In this Germany seems at present most successful, by means of its considerable and prosperous colonies. It is not impossible that the great battle of the Eastern question has yet to be fought on the old lines of the Carmel ridge and the battle-field of Megiddo. In any case, the decay of the Turkish power may open for Syria an era first of fierce contest, and then of progress; and it seems likely that in this the native Christian population now advancing in culture under the influence of missions, and the Jewish people, who are now return-

ing in considerable numbers, may bear an important part.

Scripture prophecy also points to a renovation of the old land. When Jesus predicted the ruin and desolation of Jerusalem, and wept over the devoted city, He yet, with evident reference to Old Testament prophecy, adds the words, 'Jerusalem shall be trodden down of the Gentiles, till the times of the Gentiles shall be fulfilled.' The times of the Turkish Gentiles who now tread the city of Jerusalem under foot are apparently near their end, and it remains for those other Gentile nations who are contending for the fragments of Turkey, to consider what their position relatively to the plans of God and the kingdom of Christ shall be, when that fated termination of the long oppression of Israel and desolation of the Holy Land shall arrive.



Section of black bituminous limestone of Neby Mousa, magnified, showing *Globigerina*, *Textularia*, etc., with their cavities filled with bitumen, which also saturates the intervening matrix, composed of broken bits of *Foraminifera* and *Coccoliths*.

CHAPTER V.

THE JORDAN AND THE DEAD SEA.

FROM the hills that surround Jerusalem one looks down to the eastward on the deepest depression on the surface of our continents—the valley of the Dead Sea and Jordan, only about fifteen miles distant ; and beyond this we see in the highlands of Moab and their continuation northward a long range of eastern mountains extending parallel to the Judean hills, and bearing the same relation to the Anti-Libanus range and Hermon which the latter bear to Lebanon. The descent of about 2600 feet from Jerusalem to the Mediterranean is spread over about thirty-five miles. That to the Dead Sea, 1290 feet below the Mediterranean, or 3890 feet below Jerusalem, is compressed into less than half the distance, so that the descent from Jerusalem to the Jordan is like that of a mountain side, about the rate of one foot in twenty.

This great difference of level implies a corresponding difference of climate, and the traveller who descends from Jerusalem to Jericho may pass in a short journey from winter into summer, and from a temperate to a tropical climate. I was informed that in January, 1884, there were snow-drifts 5 feet deep at the Jaffa Gate of Jerusalem, when the Jordan valley was enjoying a mild

temperature; and in February we passed from rain, sleet, and cold winds at the Holy City, to a warm and sultry atmosphere at Jericho.

This is one of those features of Palestine, to which it owes the great variety of its animals and plants, as compared with most other countries of its size. Another reason of this is, that it lies in the route of a multitude of migratory birds passing annually from Asia and Europe into Africa in autumn, and back in the spring. A third reason lies in the fact, at present not fully understood, but which is, I think, proved by the nature of the deposits in the Isthmus of Suez and the desert east of it,[1] that in the Continental period of the Pleistocene age, of which we shall have more to say in a subsequent chapter, there was a much more ample connection between Asia and Africa than exists at present.

The diversities of climate, soil, and aspect in the hills and valleys of Palestine must also have had at all times an influence on the habits and pursuits of its people. We find this even in the time of Joshua, when the Amorites of the hill-country were evidently distinct from the Philistines of the maritime plain and the Canaanites of the Jordan valley and the northern plains. I did not realise, until I had the experience of travelling in Palestine in February, how different in hardihood and endurance, and in requirements as to clothing and shelter, the people of adjacent districts may be, and how much exposure and suffering may have been the lot of those who wandered in sheepskins and goatskins, as many of the poor people of the country do now in winter, and of the 'Man of Sorrows,' Who had not where to lay His head.

[1] See Notes on the Nile Valley, *Geological Magazine*, 1884.

The country east of Jerusalem[1] presents a continuation of the same Cretaceous limestones seen in approaching it from the west. They now, however, dip to the eastward, though with many minor undulations, and on the whole it is principally the upper members of the formation that appear on the Jericho road. They consist largely of white chalky limestones and indurated marls, with numerous bands of dark-coloured flint. These, when folded and arched in the undulations of the strata, and exposed by the weathering of the softer beds, present very conspicuous and grotesque features on the hillsides, and produce multitudes of caves and rock shelters, many of which are used now, as they were in former times, to protect the people and their flocks; and in one of which we were glad to take refuge in a storm of cold rain, along with some men from Bethlehem, clad in sheepskins, who received us very kindly, and whose fire of blazing and crackling thorns, though somewhat smoky, was very welcome in the circumstances. This was our only experience of cave-dwelling; and our party, with our Bethlehem friends and a few Arabs, gathered around the blazing fire, and, covered with smoke curling over the roof of the cave, presented an appearance which recalled many old stories of Hebrew and Eastern life, and was highly suggestive of the times of the aboriginal troglodytes or Horim of the country.

Associated with these flinty limestones, and probably overlying them, are white chalky beds identical, in age

[1] I had the advantage of visiting the Jordan valley under the guidance of Dr. Merrill, the American Consul at Jerusalem, to whose kindness I was much indebted during our stay in that city. Our dragoman was David Gimal, a Syrian Christian who had been in America at the Centennial Exhibition, and who is well read in all the Biblical and historical associations of the country.

and in their containing multitudes of microscopic marine organisms, with the English chalk. Some beds also hold numerous specimens of the long cylindrical shells called *Baculites*, belonging to a group of marine animals allied to the *Nautili*, and scales and teeth of fishes.

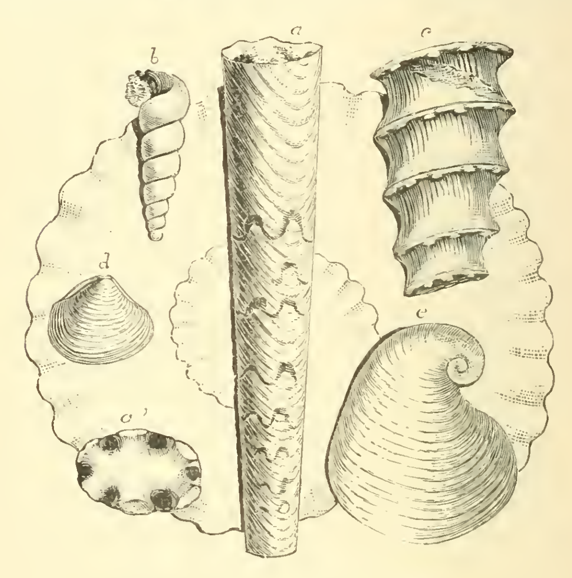


Fig. 21.—Cretaceous fossils of Judea.

a. Baculites anceps, Lmk. *a'.* Cross section showing septum. *b. Turritella Adullam*, Fraas. *c. Nerinea Mamillæ*, Fr. *d. Crassatella Rothii*, Fr. *e. Ostrea Mermeti*, Coq. Background, outline of *Ammonites Mantellii*, Sow.

In one place the rocky bed of the road was full of *Baculites*,[1] so that as we rode over it we could see them under foot. These beds are probably equivalent to the Lebanon beds, so rich in fossil fishes, and undoubtedly

[1] *B. anceps.*

belong to the upper members of the Cretaceous formation. Strongly contrasting with these chalky limestones are others blackened with bituminous matter, and also containing scales of fishes. One variety of this black bituminous limestone is that out of which inkstands and ornamental articles are carved by the people of Bethlehem,[1] and some of it is sufficiently bituminous to burn with flame, like cannel coal. When examined under the microscope it proves to be a congeries of minute shells and fragments of shells and other microscopic organisms, whose cavities and interstices are partly filled with bituminous[2] matter, constituting a very remarkable kind of rock, which, while easily cut and turned into ornaments, is of great interest and beauty as an object for microscopic study (see Frontispiece to Chapter). It is, in fact, precisely the sort of material that would result from saturating dry chalk with coal-tar, and when long weathered it becomes white and chalky at the surface, so that a mass of it quite white externally reveals an intense blackness when broken.

These bituminous beds appear in their greatest development near Neby Mousa, but are seen also on the road to Jericho, and must be of great thickness and extent, underlying much of the basin of the Dead Sea and the lower Jordan valley. They are undoubtedly the source of the petroleum exuded from the rocks near the Dead Sea, and which, when hardened, produces the asphalt of this Lacus Asphaltites. They are thus, as we

[1] Usually called, though incorrectly, 'Dead Sea stone,' and by the Arabs 'Hajar Musa,' or Moses' stone.

[2] *Foraminifera*, resembling those of the English chalk. They belong to the genera *Globigerina*, *Textularia*, *Dentalina*, &c. In the interstices of the shells there are myriads of the minute bodies known as *Coccoliths*, and also small shreds of undecomposed vegetable or animal matter.

shall see, not improbably connected with the destruction of the Cities of the Plain.

As to the original source of the bituminous matter, it is no doubt due to the same cause which in other countries has produced petroleum in marine limestones of various geological ages, namely, the decomposition of vegetable and animal matter, probably that of sea-weeds and zoophytes, under water. Such material slowly undergoes a chemical change converting it into crude petroleum ; and this, penetrating the pores and cavities of the rock, remains there until expelled by heat, by pressure, or by the action of water passing through natural rents or artificial openings. The phenomena are similar to those of the oil regions of America, though occurring here in somewhat newer rocks.

The arrangement of the beds seen in going from Jerusalem to Jericho appeared to me to be as follows, in ascending order, or proceeding from the older to the newer :—

1. Grey mottled and white limestones of Jerusalem and its vicinity, with *Ammonites*, *Turritellæ*, &c.

2. Limestones and marls, with flinty bands.

3. Red, white, and green marls and limestones, with gypsum in some places.

4. Black and grey bituminous beds, with remains of fishes.

5. Soft chalky limestone, with *Baculites*, fish, &c.

This agrees in the main with the sections observed by Lartet in the deep ravines of the east side of the Dead Sea. The whole of these beds belong to the age of the English chalk and greensands.

By the action of the sea in periods of submergence, and by the atmospheric waters, since they became part

of the dry land, these rocks have been worn into conical peaks, wall-like cliffs and deep ravines, presenting scenery of a much more wild and striking character than that of the country west of Jerusalem. To an ordinary observer the features of the region might seem to indicate great physical disturbance; but the phenomena are merely those of water action on beds of unequal hardness, slightly inclined, and weakened in some places by transverse fractures or lines of fault.

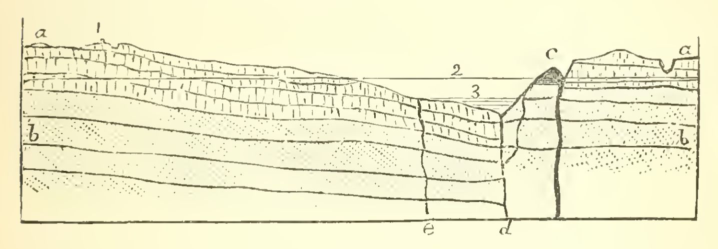


Fig. 22.—Section from Jerusalem to Moab, across the Dead Sea (after Lartet).

1. Jerusalem. 2. Level of Mediterranean. 3. Level of Dead Sea. *a.* Cretaceous Limestone. *b.* Sandstone. *c.* Volcanic rock. *d.* Line of great Fault. *e.* Fissures giving origin to saline springs.

As the beds dip to the east, we should naturally expect that in and beyond the 'Ghor,' or Jordan valley, newer beds would come in; but, instead of this, we find the cliffs on the east side of the Dead Sea to consist of the Nubian sandstone, a formation older than those we have been studying; and above this, in the hills of Moab, the limestones of Judea are repeated. This fact, as explained many years ago by Lartet, shows that there is a great fracture or series of fractures of the crust of the earth in the valley. The Cretaceous limestones of the Judean hills dipping down to the eastward are suddenly cut off, and the beds of the east side are lifted

up, so as to bring the underlying Nubian sandstone to the surface (see Fig. 22).

This great fault extends from south to north, from the Gulf of Akabah, through the Wady Arabah, the Dead Sea, and the Jordan valley to the plain of Cœle-Syria, and in its middle portion, where the greatest depression has taken place, lowers the country far below the sea-level. Whether, as supposed by Lartet, this is one great fracture, or consists of several parallel cracks, may be a matter of doubt; but the leading facts are quite evident.

The time at which this great depression took place is an interesting question. As the fault cuts the Cretaceous limestones, it must be of later date than that period. The relations of the Eocene formation to the Cretaceous in Egypt and in Arabia and Northern Palestine would also seem to indicate that it was later than this formation also, so that its date may be placed at least as near our time as the close of the Eocene Tertiary, when, as all the geological data seem to indicate, Palestine was first elevated above the sea. It is, however, quite possible that the depression may have been deepened at later periods, and more especially at the time when the great volcanic masses of Moab and Bashan were ejected and piled up on the surface of the country. These eruptions occur most extensively on the eastern or upthrow side of the great fault.

From the time of the formation of this great fracture, it would appear that the basin of the Dead Sea must have been a salt lake dependent on evaporation to remove the waters poured into it by the Jordan and other streams; but the level of its waters must have varied greatly at different times. In evidence of this, we find a succession of terraces of Dead Sea deposits extending

around the basin of the sea and far up the Jordan valley. The present shore, at the north end of the sea, consists of clean gravel, largely composed of flints from the neighbouring Cretaceous beds, among which silicified fossil shells may sometimes be found. With these are fragments of limestone and bituminous shale, and upon the shore are many drift-trees brought down by the Jordan.

Standing on the beach, we see before us the placid waters of this strange lake, blue and clear, but. owing to their great density, having a heavy and oily aspect. The shore on either side is formed of bare but brightly-tinted cliffs, running out in a succession of rugged points into the sea, and capped by grassy peaks and table-lands. But flanking these original margins we see successive flats and terraces of grey marly beds. These are the old deposits of the sea when it was larger than at present, and among them we find gravel layers marking beaches similar to the existing margin, but at higher levels. The lowest of these terraces is about 30 feet above the sea. A second attains an elevation of 100 feet, and others have been traced as high as 1400 feet.[1]

The old deposits of the Dead Sea, as seen in the one hundred foot terrace, which is well exposed in the ravines cut by the rains, consist of grey bleached-looking marls of various degrees of hardness, including nodules and crystals of gypsum, layers of impure salt, and small concretions of sulphur.[2] Toward the top

[1] See Reports by Prof. Hull to the Palestine Exploration Fund for these facts, as well as for the geology of the southern part of the Dead Sea and the Arabah; also Lartet, *Le Mer Morte*.

[2] Dr. Paulus, of Jerusalem, showed me a collection of these from different parts of the valley. They are probably not direct results of volcanic action, but of the evolution of sulphuretted hydrogen in water.

are bands of impure limestone, and these, being harder than the marls, project like shelves in the sides of the ravines, and in isolated masses form flat trencher-like tables capping their summits. I may state here that these deposits at the north end of the Dead Sea are evidently similar in kind and origin, though different in degree, from those which in Jebel Usdum, at the south end of the sea, rise to the height of 400 feet, and contain thick beds of rock-salt and gypsum. At the north end, where the principal supply of fresh water is poured in and the evaporation is less, the deposition of salt is

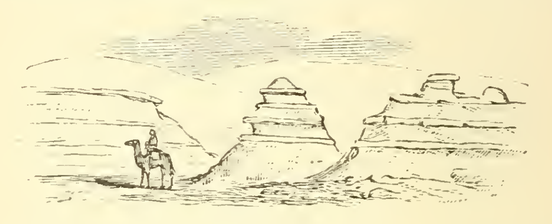


Fig. 23.—Ancient Dead Sea deposits, eroded by the action of the weather.

always likely to have been inferior to that at the southern end, south of the Lisan peninsula, which may always have represented a bar or shallow in the lake. Lartet regards the Jebel Usdum deposits as belonging to the Cretaceous period; but this seems not in accordance with their nature and relations.[1] It is true that gypsum occurs in the Cretaceous beds; but in the only place where I happened to see it, near the ruined khan between Jerusalem and Jericho, it did not seem to be an original constituent of the beds, but rather a result of waters or vapours containing sulphuric or sulphurous acid penetrating the fissures of the limestone—a sort

[1] See Hull's Reports and *Mount Seir*, on this subject.

of secondary volcanic phenomenon, analogous to that of the sulphur springs which Dr. Merrill has described in various parts of the Jordan valley. Such phenomena are altogether distinct from those of the Dead Sea deposits, except in so far as similar springs in the bottom of the sea may have supplied the gypsum of the latter.

The waters of the Dead Sea, though perfectly limpid and inodorous, are eminently unfit for sustaining animal life, not only because of their intensely saline character, but by virtue of the kinds of saline matter which they contain. Their density is stated at from 1·162 to 1·253, while that of sea-water at the same temperature is only 1·027. Hence their remarkable power of sustaining the body of a swimmer. The salt which they contain is not wholly or even principally common salt, but is mostly the chloride and bromide of magnesium and calcium, so that they are not merely a strong brine, but rather resemble the mother liquors of a salt-pan left after the common salt has crystallised out. In other words, if the water of the Dead Sea was originally like that of the ocean, it has parted by crystallisation with most of its salt, and retains chiefly the more soluble substances not easily crystallised.

These discussions, though perhaps in themselves uninteresting, prepare us to consider the historical questions connected with this remarkable lake. Here, in the first place, we must divest ourselves of the superstitious notions attached to the Dead Sea by mediæval and modern travellers, which have no foundation in nature or recognition in the Bible.

The Dead Sea, whether seen in the still sunshine or when storm-clouds are driving over it, is a noble and

impressive sheet of water. Its waters are clear and pellucid, and exceptionally free from any pollution or garbage. No noxious vapours hang over its surface. Its scenery, its mineral springs, its mild winter climate, and the density of its air, might make it now, as in ancient times, a favourite resort of pleasure-seekers and invalids.[1]

There are no volcanic phenomena directly connected with it. It is true that in Tertiary times there have been volcanic vents on its eastern side, but these are long ago extinct, and their products only serve to give additional grandeur to its scenery; while the only sympathy which the sea has with these is in the mineral and hot springs which occur on its shores, and the earthquakes which occasionally shake this district in common with others in Western Asia.

The name 'Dead Sea' is modern and unknown to the Bible writers, who name it the 'Salt Sea,' the 'Sea of the Plain or Ghor,' the 'East Sea;' and no notions of horror or desolation are associated with it by them. On the contrary, the plain at its northern end is said to have resembled the Garden of the Lord, and Engedi on its western side was celebrated for its vineyards and its beauty.

But how does this accord with the terrible story of the destruction of the Cities of the Plain, held up in all time as an example to evil-doers? To understand this we must note the topography of the Ghor or depressed Jordan valley in connection with the historical notices in the book of Genesis. It may be affirmed, in the first place, that Sodom and its companion cities were not, as held by later tradition, at the south end of the sea, but at its

[1] Tristram, *Land of Israel*, well illustrates these points.

northern end,[1] and that this must at the time have occupied, approximately at least, its present position. This appears from the name 'Cities of the Plain,' or Ciccar, that is, of the Jordan valley, or the lower end of it. It is also stated that Abraham and Lot could see this plain from the high ground between Bethel and Hai, whence only the northern end of the Dead Sea is visible. Abraham could not see the cities from Mamre, but he saw their smoke ascending. The most convincing geographical note, however, is that in Genesis xiv, which describes the invasion of Canaan by the five Eastern kings in the time of Abraham. They are said to have come down on the east side of the Dead Sea, to have defeated the Hivites and Amalekites on the south, and then to have come up by way of Engedi,[2] on the west side of the sea, and to have fallen on the Sodomites and their allies from the south-west. Thus the Book of Genesis, from which alone we have any contemporary account of these cities, fixes their position.

The manner of their destruction also connects itself with the locality. We are told that there were 'slime-pits,' that is, petroleum wells, in their vicinity. Now regions of bitumen, like that of the Dead Sea, are liable to eruptions of a most destructive character. Of these we have had examples in the oil regions of America. In a narrative of one of these now before me, and which occurred a few years ago in the oil district of Petrolia, in Canada, I read that a borehole struck a reservoir of gas, which rushed upward with explosive force, carrying before it a large quantity of petroleum.

[1] Canon Tristram has ably supported this view, as has also Dr. Merrill in his work *East of the Jordan*.

[2] Hazezon-Tamar, which is Engedi.

The gas almost immediately took fire, and formed a tall column of flame, while the burning petroleum spread over the ground and ignited tanks of the substance in the vicinity. In this way a space of about fifteen acres was enveloped in fire, a village was burned, and several persons lost their lives. The air flowing toward the eruption caused a whirlwind, which carried the dense smoke high into the air, and threw down burning bitumen all around.

Now, if we suppose that at the time referred to accumulations of inflammable gas and petroleum existed below the Plain of Siddim, the escape of these through the opening of a fissure along the old line of fault might produce the effects described—namely, a pillar of smoke rising up to heaven, burning bitumen and sulphur raining on the doomed cities, and fire spreading over the ground. The attendant phenomenon of the evolution of saline waters, implied in the destruction of Lot's wife, would be a natural accompaniment, as water is always discharged in such eruptions; and in this case it would be a brine thick with mud, and fitted to encrust and cover any object reached by it.

The fate of Lot's wife, as briefly told in Genesis, implies that she lingered behind until overtaken by the fire and saline ejections, and that when the survivors sought her remains they found only a heap of saline incrustation marking the place where she perished. The term in the original is not a 'pillar,' but a 'mound,' and the former word was probably suggested to the translators by the baseless fables which connect Lot's wife with the pillar-like masses of salt that weather out of the salt cliff of Jebel Usdum—fables which have no foundation in the Bible or in common sense.

In an article in the *Expositor*,[1] published since the issue of the first edition of this work, I have entered in some detail into the physical causes of the destruction of the cities of the Plain. To this I may refer for further information, and in the mean time may quote a few sentences :—

'With reference to the causes of the destruction of the cities, these are so clearly stated in a perfectly unconscious and incidental manner in Genesis xix, that I think no geologist, on comparing the narrative with the structure of the district, can hesitate as to the nature of the phenomena which were presented to the observation of the narrator. Nor is there any reason to suppose that the history is compounded of two narratives giving different views as to the cause of the catastrophe. On the contrary, the story has all the internal evidence of being a record of the observations of intelligent eye-witnesses who reported the appearances observed without concerning themselves as to their proximate causes or natural probability.

'We learn from the narrative that the destruction was sudden and unexpected, that it was caused by "brimstone and fire," that these were rained down from the sky, that a dense column of smoke ascended to a great height like the smoke of a furnace or lime-kiln, and that along with, or immediately after, the fire there was an emission of brine or saline mud, capable of encrusting bodies (as that of Lot's wife), so that they appeared as mounds of salt. The only point in the statements in regard to which there can be doubt, is the substance intended by the Hebrew word translated "brimstone." It may mean sulphur, of which there is abundance in

[1] January, 1886.

some of the Dead Sea deposits; but there is reason to suspect that, as used here, it may rather denote pitch, since it is derived from the same root with Gopher, the Hebrew name apparently of the cypress and other resinous woods. If, however, this were the intention of the writer, the question arises why did he use this word *Gaphrith* (גפרית), when the Hebrew possesses other words suitable to designate different forms of petroleum and asphalt. In this language *Zepheth* is the proper term for petroleum or rock oil in its liquid state, while *Chemar* denotes asphalt or mineral pitch, the more solid form of the mineral, and *Copher* is asphaltic or resinous varnish, used for covering and protecting wood and other materials. As examples of the use of these words in the Pentateuch, Noah is said to have used copher for the ark, the builders of Babel used chemar or asphalt as a cement, and the careful mother of Moses used both chemar and zepheth to make the cradle of her child water-tight. These distinctions are not kept up by the translators, but a comparison of passages shows that they were well understood by the original writer of the Pentateuch, who had not studied the chemistry of the Egyptian schools to no purpose. Why then does he in this place use this quite undecided term gaphrith? The most likely reason would seem to be that he did not wish to commit himself to any particular kind of inflammable mineral, but preferred a term which his readers would understand as including any kind of mineral pitch or oil, and possibly sulphur as well. It would have been well if later writers, who have undertaken to describe the fires of Gehenna in terms taken from the destruction of the Cities of the Plain, had been equally cautious.

It is interesting to note in connection with this, that in the notice of the pits in the vale of Siddim, the specific word chemar, asphalt, is used, and it is in this particular form that the bituminous exudations of the region of the Dead Sea usually appear.

'The source of the bituminous matter is in the great beds of bituminous limestone of Upper Cretaceous age which appear at Neby Mousa, on the Jericho road and at many other places in the vicinity of the sea, and no doubt underlie its bed and the lower part of the Jordan plain. From these beds bituminous and gaseous matter must have been at all times exuding. Further, the Jordan Valley and the Dead Sea basin are on the line of a great fault or fracture traversing these beds, and affording means of escape to their products, especially when the district is shaken by earthquakes. We have thus only to suppose that at the time in question reservoirs of condensed gas and petroleum existed under the plain of Siddim, and that these were suddenly discharged, either by their own accumulated pressure, or by an earthquake shock fracturing the overlying beds, when the phenomena described by the writer in Genesis would occur, and after the eruption the site would be covered with a saline and sulphurous deposit, while many of the sources of petroleum previously existing might be permanently dried up. In connection with this there might be subsidence of the ground over the now exhausted reservoirs, and this might give rise to the idea of the submergence of the cities. It is to be observed, however, that the parenthetic statement in Genesis xiv, "which is the Salt Sea," does not certainly mean under the sea, and that it relates not to the cities themselves but to the plain where the battle recorded in

the chapter was fought at a time previous to the eruption. It is also to be noted that this particular locality is precisely the one which, as previously stated, may on other grounds be supposed to have subsided, and that this subsidence having occurred subsequently may have rendered less intelligible the march of the invading army to later readers, and this may have required to be mentioned.

'It seems difficult to imagine that anything except the real occurrence of such an event could have given origin to the narrative. No one unacquainted with the structure of the district and the probability of bitumen eruptions in connection with this structure, would be likely to imagine the raining of burning pitch from the sky, with the attendant phenomena stated so simply and without any appearance of exaggeration, and with the evident intention to dwell on the spiritual and moral significance of the event, while giving just as much of the physical features as was essential to this purpose. It may be added here that in Isaiah xxxiv. 9 and 10 there is a graphic description of a bitumen eruption, which may possibly be based on the history now under consideration, though used figuratively to illustrate the doom of Idumea.

'In thus directing attention to the physical phenomena attendant on the destruction of the Cities of the Plain, I do not desire to detract from the providential character of the catastrophe, or from the lessons which it teaches, and which have pervaded the religion and literature of the world ever since it occurred. I merely wish to show that there is nothing in the narrative comparable with the wild myths and fanciful conjectures sometimes associated with it, and that its author has

described in an intelligent manner, appearances which he must have seen or which were described to him by competent witnesses. I wish also to indicate that the statements made are in accordance with the structure and possibilities of the district as now understood after its scientific exploration. From a scientific point of view the narrative is an almost unique description of a natural phenomenon of much interest and of very rare occurrence.'

An important note, with reference to the destruction of the Cities of the Plain, appears in the statement in Genesis xiv, that the Vale of Siddim had bitumen pits or wells, and that these were so abundant or important as to furnish a place of retreat to, or to impede the flight of, the defeated kings of Sodom and Gomorrah. These bitumen pits have disappeared, unless their remains are represented by the singular pits described by Dr. Merrill as occurring near Wady Nimrim. Their existence in the times of Abraham would bespeak a much greater abundance of bituminous matter than that now remaining; and it is possible that the eruption which destroyed the Cities of the Plain may have to a great extent exhausted the supply of petroleum.

There is no reason to believe that the destruction of Sodom and Gomorrah was connected with any important change in the limits of the Dead Sea, though it is highly probable that some subsidence of the valley took place, and may have slightly affected its levels relatively to the Jordan and the sea;[1] but it would appear from Deut. xxix. 23 that the eruption was followed by a permanent deterioration of the district by the saline

[1] Evidence as to this might be obtained by carefully taking the levels of the raised deposits on the two sides of the sea.

mud with which it was covered. It is not likely, however, that this referred to a very extensive area; and the deposit produced would be so like to those of the Dead Sea that it would not be easy to distinguish it, unless remains of man or his works were found under it. I fully agree with Dr. Merrill that these remains are to be sought for on the Plain of Shittim, at the north-east corner of the Dead Sea, where, as he informs us, there are still several ancient city sites, some of which may belong to the cities in question, which were, however, probably of small size and near to one another.

The destruction of the Cities of the Plain was used, up to the close of the New Testament canon, as an example of Divine vengeance on sinners; and the Dead Sea itself occupies an interesting place in that noble prophetic vision of Ezekiel,[1] in which he sees the waters of spiritual life flowing forth from the temple at Jerusalem and filling and sweetening the dead sea of human depravity.

The plain of the Jordan near Jericho consists of fluviatile soil, resting on the old deposits of the Dead Sea, which in places rise through it in barren mounds. In many respects it reminds one of the Nile valley, and the cliffs which bound it on the west, though of different geological age, very closely resemble those of Egypt. Such survivors of the Exodus as accompanied Joshua must have been struck with this resemblance, which would no doubt be greater in those times, when the plain was probably well cultivated and studded with date-palms, for Jericho was emphatically the 'city of palm trees.' At present nothing could present a more mournful picture of natural fertility going to waste for

[1] Chap. xlvii.

lack of good government. A few miserable peasants dwell in mud huts on this fine plain and cultivate patches of it here and there, and some equally poor Bedouins pasture their flocks on it, but for the most part it is a waste of thorny bushes and rank weeds growing in wild luxuriance, while streams of water, sufficient to irrigate the whole plain, and which did so in former times, as the remains of aqueducts and old sugar mills show, run idly into the Jordan. The only consolation is that it is a paradise of wild birds, as the number of beautiful species collected by my friend Dr. Merrill in a day amply testified, as well as those that we started on every side as we rode along.

In Joshua's time this plain was the possession of the wealthy and populous city of Jericho, and I have no doubt that the city stood on the now desolate mound near the great fountain called Ain es Sultan, or Elisha's Fountain,[1] which rises at once out of the rock as a rivulet of clear but not cold water,[2] and no doubt proceeds from caverns running far into the limestone rocks behind. It is, I think, absurd to connect this fountain with the miracle of Elisha, for the great stream of Ain es Sultan must have been what it is now from the earliest historic times. The miracle of the prophet must have had reference to one of those smaller springs that issue through the old Dead Sea deposits of the plain, and partake of their saline qualities.

The mound above referred to is of rectangular form, about 60 feet in height and as many yards in length, with two higher portions at the ends and an elevation in the middle; and it is sufficiently near the fountain to

[1] This is the opinion expressed by Conder in his report on this district.
[2] 72° Fahr. according to Tristram.

have enclosed it with its wall. On examining some trenches which had been cut in its sides by the officers of the Palestine Exploration Fund, it appeared to be composed of rubbish, at least to some depth, and this constituted two layers, the upper characterised by many fragments of limestone, which did not appear in the lower. In the lower layer I observed remains of sun-dried brick, of which Conder supposes the mound to have been originally built. We also found pieces of lava-millstones, a few fragments of thin iridescent glass, broken pottery of coarse quality, univalve shells from the Jordan, and a *Pectunculus* from the Mediterranean, pierced to be hung as an ornament. There were also many flint chips. Conder notices in his report layers of bituminous matter in the lower part of the mass. These may represent floors or roofs of asphalt used in the construction of the houses.

If we suppose the lower layer to represent the Jericho of Joshua, it may have been built of brick, while the later city, perhaps that founded in the time of Ahab, was largely of limestone from the neighbouring cliffs. This latter city gave place to a new Jericho of the Roman times, which seems to have been farther south, at the mouth of the Wady Kelt, and at the entrance to the road to Jerusalem along the side of that wady. This was probably the Jericho of our Saviour's time. Its site is marked by some mounds and stone foundations. The Moslem village of Riha is situated farther out on the alluvial plain, and is a squalid collection of dirty and ill-kept hovels. The only important building near it is a Russian hospice, which figures in our recollections as the only place in our Eastern journeying where, wet, weary, and belated, we were churlishly

refused shelter. We could scarcely help thinking of the illustration it afforded of the text, 'I was a Stranger, and ye took Me not in.'

The old Jericho of Joshua's time, though probably of small dimensions compared with modern cities, was a place of wealth and political importance. With abundance of water, in a plain of great fertility, opposite the principal ford of the Jordan, and commanding two of the most important passes into the country to the west, it had all the elements of primitive prosperity. Its walls, in all likelihood of sun-dried brick, were probably of great height, constituting rather a citadel for defence than a commodious place of habitation, as it had little of the advantage of natural strength, and its population must have been densely crowded into small space in time of war, as we may gather from the expression 'straitly shut in,' and from Rahab's house being on the city wall. Its mound-like site, its limited size, and the flat country all around, suit well with the picture of the Israelitish procession marching round it, as recorded in Joshua. We may imagine it as a small town with crowded houses built of sun-dried brick and roofed with asphalt, and surrounded with a lofty brick wall with defensive towers, the whole rising up abruptly out of the plain and enclosing at one side, or between tower-like outworks, the great fountain of Ain es Sultan, around which and along the course of the stream were groves of palms, while the gardens and fields of the inhabitants, with their summer huts and shelters, lay all around. In the Roman times circumstances had changed, and the entrance to the main road to Jerusalem had become more important as a strategic and commercial position. Hence perhaps the growth of the new town. After the

capture of Jericho, the wall of rock on the west, with but few passes, and these steep and difficult, must have appeared a formidable obstacle to the soldiers of Joshua, and we do not wonder at their discouragement when their first attempt to scale the hills of the Amorites at Ai was defeated.

Either on that mountain of Nebo, from which Moses had his first and last look of the good land of Canaan, or from any of the higher peaks overlooking the Jordan valley on the west, one can form a very clear idea of the general physical features of Palestine. We did not



Fig. 24.—Hermon and the plain of Cœle-Syria, from the road over Mount Lebanon (March, 1884).

enjoy the privilege of standing where Moses stood, but we saw enough to enable us to realise the prospect which he enjoyed. The eastern range of hills, falling on its further slope into the Syrian desert, begins with the rock fortresses of Edom, and runs north through the limestone plateau of Moab to Gilead, thence to the black basaltic highlands of Bashan, then mounts to the snowy summit of Hermon 9200 feet in height, and runs northward in Anti-Libanus. Along this line of elevated and broken country there is a greater variety of rock formation than elsewhere in Palestine. The

sandstones of Edom and Moab are proved by their fossils to be of Carboniferous or Permian age. There are Jurassic rocks in Hermon of the age of the English oolites. There are vast masses of Tertiary basalts in Bashan. These rocks were at once the strong frontier of Palestine on the east, and the abode of a hardy, pastoral, and agricultural population. West of this line runs the long deep valley of the Dead Sea and Jordan, gradually rising from the great depth of its southern end to an elevated plain in Cœle-Syria, and including those portions of the land enjoying the warmest climate along with much fertile soil. Then came the main limestone backbone of the country west of the Jordan; beginning in the highlands of Judea and the South country, a great natural fortress which, when well held, could always bid defiance to the attacks of enemies, and running north into Samaria and Galilee, though there partially broken by the spur of Carmel and the wide and fertile plain of Esdraelon, and finally culminating in Lebanon with peaks 10,000 feet in height. At the western base of the Judean hills lay the broad plains of Sharon and Philistia, extending to the utmost sea, that sea around which were gathered so much of the commerce and civilisation of the ancient world.

It has been well said that we cannot find any country, in its situation, productions, and physical features, so well suited to be the abode of the chosen people of God, so well fitted to be a centre whence a higher spiritual life might emanate, so well suited to be the cradle of a literature world-wide in its scope. Has it fully done its part in the world? Does it belong, like so many old countries, to the past, and to the past alone? This can scarcely be. So long as the Bible, which is so essentially

the book of Palestine, is also the book of the civilised world; so long as men are thrilled by its story and its poetry, and listen to the Divine words of Jesus of Nazareth;—so long must Palestine live in the affections of men. The same feelings which impelled Abraham to leave friends and country for its sake, and which urged the hosts of crusaders in the Middle Ages to sacrifice their lives in mistaken zeal for its possession, still live. It is true that it is now 'trodden down of the Gentiles,' under perhaps the worst form of robbery that ever existed in the name of a government, and that it is surrounded by a net of political complications which warn all men from meddling with it; but its time and God's time will surely come. And here I must say one word to Christians interested in Palestine. Its present hope lies not so much in fanciful theories of the national restoration of the Jews as in the cultivation of the native Christian and Jewish populations, among whom the Protestant Missionaries are now working. The best hopes of Palestine rest on its Christian people, and on the spiritual and intellectual elevation of their children now in the schools of the Missionaries.

NOTE.—For more detailed information respecting the geological questions discussed in the above chapter I would refer the reader to Lartet, *Exploration Géologique de la Mer Morte*; Huddleston on the *Geology of Palestine*; *Proceedings of the Geologists' Association*, vol. viii; and Hull, *Mount Seir, Sinai, and Western Palestine*, and his *Memoir on Geology* issued by the Palestine Exploration Fund.





Ascent of the Pass of Nahr-el-Kelb from the North, with one of the Tablets. (Sketch by E. D.)

CHAPTER VI.

PREHISTORIC AND HISTORIC MEN.

WHEN one reads in the guide-books that Egyptian kings reigned over a great nation long before the time when Adam is generally supposed to have been expelled from Paradise, it seems useless to look for any properly prehistoric men in Egypt. On the other hand, when we see the statement gravely made that the early civilisation of Egypt implies countless ages of progress from a state of barbarism, we run into the opposite extreme, and conclude that the whole soil of the country must be filled with stone implements and with human bones. In truth, the absurdity of such statements makes us wonder that they meet with so much acceptance, or perhaps rather that such demands should be made by archæologists on the credulity of the unscientific public.

The earliest dynasties of Egyptian kings are known to us chiefly by the facts gleaned from a few tombs and sculptures, and by the traditions of later ages; and even these sources of light fail with respect to the three earliest of Manetho's dynasties, of which only the names survive. Thus the only evidence of any human existence anterior to these earlier kings is that derived from the occurrence of certain chipped flints, supposed to be of human workmanship, and found in gravel, undoubtedly

of great age. It will be necessary for us to sift this evidence, and ascertain what it contains of truth, and to what conclusions it legitimately leads.

It may be well, in the first place, to refer to the statement made in an earlier chapter as to the little antecedent probability that the remains of antediluvian or palæocosmic man will be found in Egypt. These men lived in the Second Continental or post-glacial period, when Europe and Northern Africa were more elevated above the sea than at present, and when it is probable that Egypt was almost wholly a desert region. If any men had found access to it, and lived along the strip of land by the side of the then rapid and narrow river that represented the Nile, their remains would most likely now be deeply covered with alluvial mud; while if their habitation was at the river-mouth, by the sea-side, their former abodes would now be under the Mediterranean. There are, however, caverns which man may have haunted, and old deposits of high-level gravel, not unlike those in which supposed flint implements have been found elsewhere; but I am not aware that any cavern deposits containing prehistoric human remains have been found, and the gravels have, as yet, yielded no certain evidence.

We may also notice the fact that Egypt is abundantly supplied with flint in a state suitable for the manufacture of implements. Some of the beds of soft Eocene limestone are nearly as richly stocked with flint nodules as the white chalk of England and France. They have been produced in these limestones in the same manner as in the chalk, by the secretion of silicious matter included in the soft calcareous mud of which the beds were composed. Where these limestones have been

removed by marine denudation, vast tracts of desert are found to be covered with entire and broken flints. In like manner the wadies cut by the mountain torrents are full of flint nodules, and when the limestone is quarried some of the beds have so many flints as seriously to interfere with their economic uses. Some of these flints are brown and opaque, constituting a kind of jasper or chert; others are translucent, and of a grey colour, like ordinary chalk flint.

There is good reason to believe that these flints were largely used by the ancient Egyptians. Flint picks have been found in some of their mines. They used flint-headed arrows for shooting birds and other animals. Flint knives were used for sacrificial and surgical purposes, and for shaving the head. It is generally believed that much of the fine carving of hieroglyphics and figures in low relief on the walls of tombs was executed with flint tools, and careful study of the worked surfaces with the lens induces me to believe that this is not improbable. Petrie has also shown that for cutting the harder kinds of stones gems set in bronze drills were employed, and for softer stones flint may have been used. In short, we have reason to believe that for several purposes the Egyptians preferred flint, and that for others they used it as a cheap and readily obtained material.[1] At a later date there was an extensive demand for flints for flint-lock muskets, and the trade of manufacturing these is by no means extinct. At Assiout, where there is abundance of good flint in the limestone of the neighbouring mountain, I saw, in the market, women selling flint flakes, and I was informed

[1] Mariette Bey has given many illustrations of these facts.

that the fellaheen in this part of the country carry these in their tobacco-pouches with a steel and some vegetable fibre for tinder, and so save the expense of matches for lighting their pipes and cigarettes. I obtained from the tobacco-pouch of an Arab friend at Gizeh one of these 'strike-a-lights,' so much worn by use that it had become deeply concave on one side, and closely resembled those hollow scrapers found on ancient sites, and believed to be tools for polishing shafts of spears. Flint muskets are still in use by the Bedaween and fellaheen, and the flints which I saw for sale at Assiout, and which could be purchased for one or two piastres a dozen, were fitted to serve for either purpose. The mountain behind this place, which is riddled with the tombs of the inhabitants of the ancient Lycopolis, excavated in the flint-bearing limestones, is in places strewn with flint chips, the result of such manufacture both in ancient and modern times. Dr. Schweinfurth, of Cairo, informed me that the people of the village of Kadasseh, opposite Cairo, are largely employed in making flints. They have hammers of soft iron for the purpose, and are very dexterous in shaping the flints with a few blows, and their village is surrounded with heaps of flint refuse. I afterwards obtained specimens from this place.

In these circumstances it is evident that the flint flakes strewn over the country, even when found in connection with so-called 'ateliers,' cannot be considered as evidence of prehistoric man. Nor is it correct to affirm, as some have done, that chipped flints are found only on the natural desert surfaces, and not on the sites of old towns and similar places. Of course they are much more abundant on the desert surfaces from which flint-bearing beds have been denuded, because this is their natural

position, and in this position the broken flints are usually those which have been chipped by the long action of natural processes. One error in regard to this natural breakage deserves notice. It is said to have been caused by the alternate expansion and contraction of the flint from changes of temperature. But flint is not easily broken in this way. I have exposed piles of chalk flints for years to the frosts of a Canadian winter, alternating with rain and mild weather, and though a few good flakes and piercers were produced, this was only from the surfaces already broken, and the number of specimens was small. The actual cause is the pounding of heavy stones borne along by torrents, or driven by surf, and the fragments produced in this way are often very similar to those produced by hammering. Hence the flint splinters and flakes which may be mistaken for works of man are found, not so much on the flat desert surface as in masses of rolled gravel and in the beds of torrents and the sides of steep hills.[1] Where they are found elsewhere it may be suspected that man has had something to do with their manufacture or collection, and this is certainly the case in the vicinity of some Egyptian tombs, and at spots, here and there, where piles of flint chips may be seen scattered round little depressions in the ground, or around a stone on which the workman may have sat (Fig. 26).

On the ordinary desert surface, it is true, the effects of the weather may sometimes be seen in chipping off little circular flakes from the exposed sides of flint nodules, giving a pitted appearance to their surfaces, but

[1] In some flint gravels in Kent I have observed certain layers in which broken flints specially abound. These represent surfaces on which severe abrasion has occurred.

not usually producing larger fractures. The breaking of the countless multitudes of fractured flints that occur in the beds of gravel and on the surface is to be attributed to mechanical percussion ; and whether this has been the effect of natural impinging of stones on the flints has to be determined by the circumstances of their occurrence, the greater or less regularity and uniformity of their shapes, and their association with other evidences of human residence. Of course, when there is evidence not merely of chipping but of moulding into determinate shapes by pressure of the edges, in the manner in which modern savages give the finish to their weapons, the proof of human agency is very much stronger.

With reference to conditions of occurrence, it is evident that those lying on the surface can give no evidence as to antiquity, except that derivable from their more or less weathered character ; but this differs in different kinds of flint. The best evidence of great age would be that available with reference to certain caves in Syria, to be noticed in the sequel—namely, their occurrence in stratified deposits known on other evidence to be of certain definite geological ages. This test is less easily applied to the gravel deposits, especially when they contain no fossils.

Now in Egypt nearly all the flint flakes known occur at the surface of the ground, or covered merely with modern mud or rain-wash. I can find only one instance of their occurrence in beds probably of some antiquity. This is the well-known discovery by General Pitt-Rivers of flakes supposed to be of human workmanship in a bed of gravel near Thebes, in which, owing to its hardness and the subsequent cutting of a ravine across it, the Egyptians had at a very ancient period excavated

tombs.[1] Such gravel is undoubtedly prehistoric, and if actual flint implements have been found in it, it proves the residence of man in Egypt at a period greatly earlier than that of Menes, the alleged founder of the Egyptian monarchy. Before visiting Egypt I read this most interesting paper; but though the author had evidently given much attention to the subject, it was also evident that he had overlooked some important facts which would at once suggest themselves to a geologist, and had taken for granted some things for which a geologist would expect proof. I therefore took the first opportunity to visit and examine the locality which he has so well mapped and described.

The well-known valley of the Tombs of the Kings at Thebes is a gorge or wady cut into the Eocene limestone, which here rises abruptly to a height of 700 feet above its bed on either side. The strata are horizontal, but where the wady occurs there has been an east and west fracture, along which the limestone has become in places a brecciated mass, and which has given origin to the cutting of the wady. The bottom of the valley is covered with a bed of fragments of the harder limestones and of flint nodules; and so violent are the torrents which occasionally traverse it in winter storms, that wide furrows as much as 4 feet deep have been cut through the mass, and stones as large as 2 feet in diameter are rolled before the waters. This has occurred in modern times, and I saw places where the paths made by rolling aside the large stones had been again obstructed by them. I may state here that occasionally rain pours in deluges on the hills of Egypt and

[1] *Journal of Anthropological Institute*, vol. xi. p. 382. See also a paper by the author, *Transactions of Victoria Institute*, May, 1884.

produces frightful torrents. I saw many evidences of this, and at Jebel Attaka, on the Red Sea, in a perfectly desert country, I observed a place where a road embankment made to a quarry used in the construction of the Suez Canal had been cut across by a torrent and large stones rolled to one side. A trustworthy and intelligent man, long resident at Koorneh, and well acquainted with the Bab el Molook, the Gate of the Kings, as this valley is called. pointed out to me examples of this torrential action dating within his own experience.

At present these torrents in the Bab el Molook only suffice to drift materials to the mouth of the gorge, but at some previous time—probably when the valley was steeper and less deeply excavated, when for a limited time there was an unusual torrential force, and when the waters flowing from it poured either into a broader Nile or into the sea itself—a great mass of similar matter was projected from it in a fan or delta, known as Jebel Assart, and which is about a mile in length and a quarter of a mile broad, while its highest part is about 25 feet above the alluvial plain. At a later time a *coulée*, or wady, has been cut through this mass by the floods from the valley, which still occasionally fill it after violent storms, and drive large stones before them. The sides of this cut show good sections of the gravel, which is consolidated by calcareous infiltration, so as to constitute a soft conglomerate. The gravel is composed of partially-rounded pebbles and blocks of limestone and broken and entire flints, agreeing in this respect with the recent gravel now in the main valley; and some of the blocks are quite as large, being occasionally 2 feet in their longest diameter, though this size is rare. General Rivers has noticed the stratified character of the gravel,

and that it contains a band of hardened mud. I found, however, that in some of the deeper sections there are several such bands, and that the material is entirely different from the mud of the Nile, being sandy and calcareous, and mixed occasionally with small stones and broken flints. It is merely a product of the less violent driftage from the valley, spread out in water in the intervals between the coarser deposits. In some

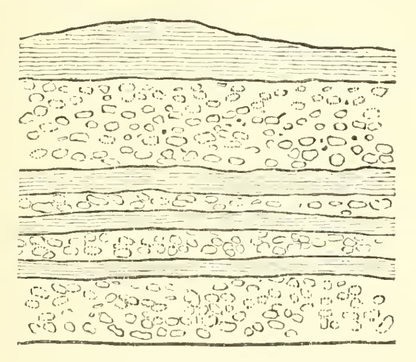


Fig. 25.—Ancient Gravel of Jebel Assart near Thebes, with bands of hardened loam and sand.

places it has been cemented into a stone quite as hard as the softer varieties of the Eocene limestone. I searched in it carefully for fossils, but found only some faintly-marked branching cavities, which may represent roots or aquatic plants.

That this bed of gravel is of very old date is evidenced by the fact that the Egyptians have excavated tombs in it in the same manner as in the neighbouring hills. Many of these now stand open in the little wady, some entire, and others with their roofs fallen in ; and it is evident that when they were cut the gravel was as

hard as at present. Independently of this, its character, position, and material show that it was deposited in water or afterwards submerged, and that it consequently belongs to a period antecedent to the present geographical conditions of the country, and therefore dating from the Pleistocene, or Post-glacial, rather than the recent period. No geologist can, I think, doubt that its deposition and consolidation are altogether anterior to the establishment of the Egyptian monarchy. At the same time, though this gravel is ancient, its actual deposition need not have occupied a long time, but probably was sudden and paroxysmal.

Now in this gravel, and some distance below its surface, General Pitt-Rivers finds flakes of flint which he regards as of human workmanship, and which he has figured and described in the *Journal of the Anthropological Institute.* The antiquity of the beds being undoubted, the whole question at issue turns on the validity of this inference, and I am sorry to say that, after the most careful scrutiny, and the collection of large numbers of the flakes, I cannot follow with any confidence the learned author in his opinion as to their origin. The following reasons, I think, are sufficient to show that they may be natural rather than artificial.

None of them are implements, properly so called, or even definite flakes struck off from cores like those found in the bone caverns of Syria and on the surface in some parts of Egypt. On the contrary, they are chips of all shapes, and such as could not be referred to any definite purpose. If found in association with human remains, they might be supposed to have been selected for use, as likely as to have been made. While countless multitudes of broken flints exist in the gravel, not

one in a thousand has a form which could enable it to be useful to man in any way, and from such flakes there is every gradation to perfectly shapeless fragments. In the natural débris recently swept down the ravine the forms are much the same, though it is evident that these have been broken by modern torrential action. While I was engaged in extracting flakes from the old gravel, I employed my guide in collecting them in the recent torrential stuff, and his specimens would certainly have been considered by any enthusiast in flints as better than mine. Not only have many of these modern flints been well chipped and furnished with 'bulbs of percussion,' but by rolling together they have even been crenulated on the edges, so as to resemble scrapers. In short, the evidence for prehistoric man afforded by the Theban gravel is no better than that which is afforded by the broken flints now being chipped by the torrents.

I attach no great importance in this discussion to the so-called 'types' of flint flakes and implements. Rudeness of form is no evidence of age. The rudest possible chips may have been formed in the production of good implements, and very rude implements were used by cultivated nations for agricultural and other purposes, and even for sculpture and for surgical operations. On the other hand, there is a precision of form and definiteness of adaptation which distinguishes artificial forms of any kind from those which are accidental or natural. I have elsewhere [1] expressed the results, in respect to this point, of much study of American stone implements, and my conclusions have been confirmed by the examination of the fine collections at St. Germains and of the oldest

[1] *Fossil Men and their Modern Representatives*, 1880.

flint knives in the Syrian caves, and I may add also by the kind teaching and illustrations of the greatest English authority on such subjects, Dr. John Evans, whose magnificent collections show every form of flake and chipped implement that has ever been devised. and who has given to the whole subject the closest and most accurate study. Dr. Evans, however, I may add, expressed his belief that some of the chips which I showed him from Jebel Assart may be truly of human workmanship.

With regard to the precise geological age of the fan or mound of gravel at Jebel Assart, I am inclined to refer it approximately to the same date with the raised beaches with modern oysters (*Ostrea Forskali*) near Cairo, and on the side of a hill called Het el Orab, near the Pyramids of Gizeh. At the latter place there is a consolidated gravel beach, made up mostly of fragments of the neighbouring rocks, some of them with oysters attached, or in their interstices. There are no broken flints in this gravel, because the beds of the old coast at this point do not afford them, but the gravel is in the same condition, and has been subjected to denudation of like character, as it now overhangs with an abrupt surface a valley of considerable depth. Both deposits may in any case be referred with some probability to the Pleistocene period, and most probably to the period of submergence with cold and moist climate which preceded the Second Continental or Post-glacial age. Thus if the flints in these beds were really worked by man they would carry his residence in Egypt back to the time of Pleistocene submergence, when Africa was an island.

That flints have been worked at Thebes long subsequent to the deposition of the gravel at Jebel Assart,

I saw evidence in a very distinct 'atelier' on the top of the bed. It was a small depression in the soil with a large stone at one side, and quantities of flint chips lying around. The chips were all shapeless, like those left by the modern makers of gun-flints, but their weathered surfaces showed that they are of considerable antiquity. Such places for the making of flint implements within the historic period abound in Egypt, and have been described by Sir J. Lubbock, Mr. Jukes Browne, Mr. R. P. Greg, Professor Haynes, and others.

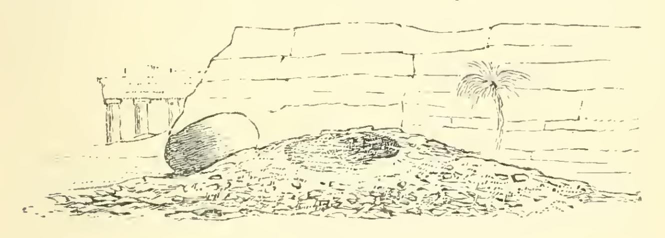


Fig. 26.—Atelier with Flint Chips at Jebel Assart.

One of the most interesting localities of this kind is that at the baths of Helouan, near Cairo. At this place the desert surface of the lower surface skirting the Turra cliffs is not very abundantly supplied with flint nodules. They are indeed more rare than is usual in such places. At one spot, however, a short distance south-west of the town of Helouan, chipped flints are found in some abundance on the surface. They are principally elongated and slender flakes, and are evidently of human workmanship. The place where they occur is, however, full of fragments of burned brick, and of limestone from the quarries behind, and there are also some remains of superficial graves. The locality is thus evidently the site of a village, possibly connected with the use of the

sulphur springs in the Greek or Roman period. The connection of the flint chips with the village is as obvious as that of the bricks, and it is probable that its people, like those of Kadasseh at present, were makers of flint implements, which, judging from their prevalent form, were intended to be used as small knives, piercers, &c., or possibly for carving on limestone slabs. Arrows and spear-heads have been found at this place; and I saw specimens of these after my return to Britain, more especially in the collections of the Edinburgh Society of Antiquaries; but I was not so fortunate as to find any, and I imagine they must be rare. This Helouan atelier is an example of many evidently belonging to historical times.

Professor Sayce has, I believe, suggested that the flint knives of Helouan and similar places may have been the work of rude Nubian tribes, who took possession of portions of the Nile valley in the decline of the Roman power; but there seems little reason to doubt that there was a sufficient demand for such implements during the whole period of Egyptian history to cause their manufacture to take place at certain spots where the circumstances were favourable. It seems singular that Helouan is a place where flints are naturally scarce, though silicified wood abounds on the rising ground behind; but the material could easily be obtained in the inland cliffs, where also there were extensive quarries, from which fresh, unweathered material could be procured. Before leaving this subject it is interesting to note that the only instances recorded in the Bible of the use of flint implements are closely connected with Egypt, and refer to the performance of the rite of circumcision with flint knives (Exod. iv. 25, Josh. v. 2).

It would thus appear that the only Egyptians we know anything of with certainty are those of the historical period, and these, we must believe, migrated into Egypt not as barbarians, but in possession of all the knowledge and artistic skill of that long antediluvian age of which their immediate successors were the survivors. The use of the more important metals, the building of cities and ships, the tillage of the soil, and the domestication of animals, were all acquisitions of the antediluvian age. These the primitive Egyptians must have brought with them ; and in a land so abundant in food, and with such resources for quarrying and transportation of material, they must have had ample opportunity for carrying them into practice.

In a previous chapter I noticed the probability that Egypt was originally a wooded country, and I may now add that Dr. Schweinfurth, who has devoted himself to the investigation of the botany of Egypt and the country to the south of it, believes that in primitive times Egypt must have been an extension of the forest region of interior Africa, and, notwithstanding the present paucity of its indigenous arboreal flora, must have been well wooded. Thus the early Egyptians would have abundance of that kind of material which is of all others most important to settlers in a new country, and the clearing of the soil of forests, and the use of wood in constructing buildings, boats, vehicles, and agricultural implements, must have been among their earlier operations. It is quite likely, therefore, that the earliest villages in Egypt were built of wood, and that navigation on the Nile was developed very rapidly. This view accords with the fact that many beautiful examples of carving on wood have come down to us from the

period of the early monarchy. The wooden statues preserved in the Boulak Museum and in the Louvre, and the planks covered with hieroglyphics, carved in the most beautiful and artistic style, show that under the earlier dynasties working in wood had attained to a degree of perfection unsurpassed in any later age. The potter's art and metal-work in bronze seem to have been as early as work in wood; but in neither of these did the Egyptians attain to the artistic delicacy displayed in some other countries. But from very early times they seem to have preferred stone for the higher development of their art: and there is evidence that in the earlier ages, before the Hyksôs invasion, they had already explored and turned to account most of the mineral resources of their country. They had not only opened quarries in the Eocene limestone, and discovered the best and most useful beds, but they had quarried the granite, syenite, and diorite of Assouan, as well as the Nubian sandstone of Silsilis; and their sculptors had worked blocks of anorthosite and porphyry from the mountains between Kosseir and the Nile, and blocks of basaltic rock from the Libyan desert, as well as the hardest quartzite from Jebel Ahmar and its companion hills.

In the Boulak Museum are two tables for offerings of this age, made of the stone last mentioned, a rock harder than agate. They are large and thick slabs, worked in the most elaborate manner into a series of raised bowls or cups above, with inscriptions around the edges of the slabs. The rock is too hard to be cut with steel or bronze, except by a slow process of elaborate chipping, followed by polishing and drilling with emery or some other very hard material. The labour bestowed on these stones would in the present day be esteemed

an altogether extravagant waste, and is only to be paralleled by the drilling in hard stone practised by some of the more civilised aboriginal tribes of America. That the old Egyptians used the drill in working hard stones is well seen in an unfinished slab at Boulak, on which the outline of a leaf has been marked, and the space within drilled with a number of round holes to the depth it was intended to cut in making the leaf uniform with other figures on the same slab. Only in this way could the hieroglyphics have been cut on standing obelisks, as in the case of the inscriptions of Rameses II, cut into the granite of the obelisk of his predecessor Thothmes III, which is now on the Thames embankment ; and in no other way than with efficient drills could quartzite shrines such as that found at Pithom and those at Zoan have been hollowed out. The monolithic shrine of Pithom, now at Ismailia, six feet long and three feet high, and which has within it a sphinx left in hollowing the shrine, is formed of the hard sandstone or quartzite of Jebel Ahmar, and could have been hollowed only by the use of drills armed with very hard cutting gems. In cutting on hard stones like quartzite and granite, both drilling and chipping must have been used ; and it is interesting to note that both these means of working hard stone were practised by the American Indians and other primitive peoples.[1]

The Egyptians of the early kingdom had also discovered and worked a great number of ornamental stones. They mined the turquoise in Arabia and the

[1] Mr. Flinders Petrie, *The Pyramids and Temples of Gizeh*, shows that the Egyptians must have used hollow drills armed with gems, or, in other words, the same kind of contrivance revived in the diamond drill of modern times.

alabaster of their own limestones, and we find calcite, agate, carnelian, amethyst, fluor, garnet, serpentine, and lapis lazuli commonly used for beads and small ornaments. Some of these stones, as well as amber, of which the remains are occasionally found, may perhaps belong to a somewhat later time than that here referred to; but the relics of the early monarchy imply much search for gems, and some skill in working them. The boring of amethyst, agate, and especially garnet, for beads, is itself a work of some difficulty, independently of more artistic performances. The skill of the ancient Egyptians in working all kinds of gems and stones, and in the manufacture of jewelry, illustrates the early notices of such objects in the Biblical books, for there can be no question that these arts had attained great development in Egypt before the time of Abraham, who is the first recorded Hebrew visitor to Egypt, and who no doubt, like later travellers, brought back with him to Canaan among the valuables in gold and silver which he is stated to have acquired in Egypt some specimens of the artistic skill of that country.

The engineering and architectural power displayed in the Pyramids has been often referred to; but it must be borne in mind that this is only a further development of the megalithic masonry of so many ancient peoples; and the pyramid itself is a sepulchral or religious monument common to many primitive nations of the Old and New Worlds. There is no essential difference between the teocalli of Mexico, the temple mound of Assyria, and the stepped pyramid of Egypt, except in the greater perfection of mechanical skill and the immense amount of labour bestowed on the latter.

The actual time implied in the long list of Egyptian

kings preserved by Manetho, from the age of Menes downward, cannot be determined with any certainty, and it has been well remarked by a recent writer that all is guesswork before the twelfth dynasty. It seems, indeed, quite certain that the earlier dynastic lists relate to kings many of whom must have been petty local sovereigns, so that several may have been reigning at one time. When we read of Thinite, Memphite, and Theban dynasties, it is implied that there were separate sovereignties existing in the principal centres of population, and that though occasionally one of the kings made himself paramount, there were other times when distinct kings reigned at these several places, yet all the names were preserved. This seems to be implied in the discrepancies in the lists actually extant at Abydos and Thebes, which show that the kings of the eighteenth dynasty traced their predecessors in these places through distinct lines.

That the art of writing, and with it historical and other literature, came with the earliest Egyptian colonists there seems now no reason to doubt. It is certain at least that the oldest known monuments show it in as great perfection as at any subsequent date, and we have contemporary writing on the monuments of Chaldea. The art of writing certainly dates at least from the Deluge. In its Egyptian form, however, it very distinctly points to its origin in picture-writing, similar to that of the old Mexicans, passing into ideographic characters, like those of Central America and Easter Island, and finally assuming a phonetic form very beautiful in its artistic aspect, and having peculiar adaptations to variety of expression and union with syllabic and pictographic representation. Considering

its adaptability in this way, one does not wonder that the Egyptian learned caste of priests and scribes refused to the last to abandon it for a more purely alphabetical style. The invention of papyrus paper, a native Egyptian discovery, must have given a great stimulus and aid to literature, and its disuse marks the time of literary decay beginning in the later Roman period. The disappearance of the papyrus from Egypt implies those political changes which reduced the Egyptians to bondage, and that comparative barbarism which eclipsed their literature: both of these causes combining to destroy the culture of the papyrus, which as a wild plant had been extirpated by the demand for it in better times, so that now the papyrus is no longer found in Egypt; and according to Dr. Schweinfurth, who has directed attention to the causes of its disappearance, it would not now be profitable to cultivate it for the manufacture of paper. It has been remarked as a pleasant feature of the oldest Egyptian writings, that the hieroglyphics used relate to peaceful occupations, and not to war, and that in these older inscriptions there is also an absence of images of gods, and a more exclusive devotion to Ptah, the creator. This corresponds with our Biblical ideas of the simple piety of the early descendants of Noah. It was after the invasion of the Hyksôs and the wars thence arising that the military spirit and the more gross idolatry became dominant.

The few portrait statues and sphinxes that remain from the Hyksôs period are worthy, in their style of execution, of the best times of Egyptian art; but in the succeeding ages of the eighteenth and nineteenth dynasties, the culminating period of Egyptian power, we have in some respects a change in the tastes and monuments

of the Egyptians. This was probably the period of the Hebrew residence in Egypt, and it is not unlikely that they and other Semitic peoples inhabiting portions of Lower Egypt exercised some influence in this new age. External circumstances were, however, also different. Wood had become scarce and dear; clay, sun-dried brick, and stone had replaced it in many kinds of work; the Delta region had become more important relatively to Upper Egypt; canals, irrigation, and culture had extended over the whole country. Quarrying and conveyance of large blocks of stone had been perfected, elaborate and conventional sculpture was more esteemed than accurate representation of nature. Pyramids had gone out of fashion; and it was the age of pillared halls, colossal statues, and obelisks. The Nubian sandstone, instead of the limestone of Middle and Lower Egypt, became the chief stone of construction, and the finest blocks ever quarried were taken from the rocks of Syené. In front of one of the southern propyla of Karnak were six seated colossi, each a monolith about 20 feet in height. Each was sculptured in a different kind of stone. Four, which remain more or less entire, are respectively of three varieties of limestone or marble, and of a brown quartzite with pebbles, similar to that of Jebel Ahmar, near Cairo, and of intense hardness. The two others, of which only chips remain, were probably one of quartzite and one of red granite. The blocks for these statues must have come from different quarries in the different parts of Egypt, and were perhaps intended to be representative of these different districts. In any case, they afford a curious testimony to the capacity of the Egyptian sculptors to deal with any kind of stone, and also to their ability to convey

large masses of stone to great distances. One of the most remarkable feats of the latter kind is evidenced by a recent discovery of Petrie at Tanis, the Zoan of the Bible, in the northern part of the Delta. This is the remains of a statue of Rameses II, the oppressor of the Hebrews, which has been a monolith of granite 90 feet in height, and weighing about 1200 tons.[1] This immense mass must have been cut at the quarries of Syené, and conveyed more than 500 miles, to be set up in the temple of Tanis as a monument of a man distinguished alike by personal beauty, ability, and energy, and by remorseless cruelty and tyranny.

It is unnecessary to pursue this history further, but I may refer to two objects which I picked up in Egypt, and which perhaps point to a time when polished stone tools were extensively used. One is an ovate flat piece of polished slate about 5 inches long, broad and sharp-edged at one end, and pointed at the other. It may have been a hatchet, knife, or spear-head, and was said to have been found in a tomb in Upper Egypt, along with jars of brown earthenware. The other is a beautifully polished chisel of light green jade, scarcely two inches long, and pierced with a hole for suspension, to be worn as an ornament or charm. The form is that of the ordinary oblong stone hatchet or chisel of early Europe and America, and, though small, it may have been actually used. The edge is, however, quite blunt, and it is more probably a mere model cut for an ornament, or to be left as an offering with the dead. The form and material are, however, both interesting, as pointing to a time when polished hatchets of stone were still in use in Egypt, and they connect themselves with

[1] Report of Egypt Exploration Committee, 1884.

the record on Egyptian monuments that implements of green stone were brought as tribute by the Hittites.

Though the valley of the Nile, which has a history so interesting and extended, fails to afford traces of the oldest known races of men, Syria supplies what it lacks in this respect, and some of the bone caverns in the northern part of that country, to which Canon Tristram first directed attention in England, seem to carry us back to a time anterior to the oldest history of Egypt. These caverns are of great interest, and I shall summarise here some notes respecting them which I read in 1884 before the Victoria Institute of London.[1]

The Lebanon Mountains, composed as they are principally of horizontal or slightly inclined beds of limestone of different degrees of hardness, and traversed by many faults and fissures, are eminently suited for the production of caverns and rock shelters available for human residence or for sheltering animals. Hence the Lebanon range seems at all times to have been a favourite abode of troglodytes, and to this day caverns are not infrequently used as places of residence or shelter. These caverns are, with respect to their origin, of two kinds,—river caverns and sea-cliff caverns.

The former have been excavated by streams running underground, along lines of fissure, which they have enlarged into tunnels. A remarkable example of this kind is the Grotto of the Nahr-el-Kelb, or Dog River, the ancient Lycus, which was explored in 1873 by

[1] According to Lartet (*Comptes Rendus*, 1864), Dr. Hedenborg was the first to direct attention to the Ant Elias caves, but he does not seem to have examined their contents. M. Botta was the first to notice the rock shelters near the Nahr-el-Kelb River, which Lartet himself afterwards explored, and which are obviously more modern in their contents than the breccias of the Nahr-el-Kelb Pass described by Tristram.

Messrs. Marshall, Bliss, Brigstoke, and Huxley, and found to extend for 1256 yards, and to expand into large halls, with magnificent stalactites. Another is that from which the neighbouring mountain stream of Ant Elias issues like a gigantic fountain. These water-caves may ultimately become dry, by the streams finding a lower level, either in the rock itself or in some adjacent ravine, this being, perhaps, sometimes determined by the partial falling-in or choking of the cavern itself. In the ravine of Ant Elias, in addition to the present water-cave, there is one which has become perfectly dry, and there are remains of others which have been cut into and unroofed by the further excavation of the ravine.

The second class of caverns,—those excavated by the sea,—may be seen in process of formation at many places on the coast, where the waves have cut into fissures or have undercut the harder beds. They are usually not very deep, and are often mere shelters or overhanging ledges. Such caverns are frequent on the old inland cliffs, which have been subjected to erosion when the land stood at a lower level. Caverns of both these classes contain evidences of their use by man.

To the latter class belongs the cavern, or rather remains of a cavern, discovered in 1864 by the Rev. Canon Tristram on the celebrated maritime pass of the Nahr-el-Kelb, or Dog River, near the mouth of the stream of the same name. At this place the limestone rock extends boldly to the sea in a high cliff, and a road was cut around the sea face of the precipice in very early times, for on one of the tablets which successive military commanders have cut here to record their conquests appears the names of Rameses II, the oppressor of the Israelites, who passed this way in the course of one of

his raids into Asia. The road of Rameses is very rough and narrow, and high up in the cliff. A better road, the same now followed, was cut by the Roman Emperor Antoninus. (See Frontispiece to Chapter.)

I had the pleasure of visiting this place in company with the Rev. Dr. Bliss, of the Beyrout College, in February 1884, and endeavoured, as far as possible, to supplement and perfect the observations of Canon Tristram.

At the point in question, the present road is about 100 feet above the sea-level, from which the bank rises in a steep slope, composed of fallen blocks of stone. The road bends inward into the cliff, which here recedes in a little cove facing the north-west, at the bottom of which was the cave. The remains of this consist of a stalagmite floor, about 18 inches in its general thickness, extending inward from the road toward the cliff about six paces, and in breadth along the road about nine paces. The roof and sides of the cave are gone, but at the back the vertical cliff presents a sort of niche with the top slightly arched, and corresponding to the back of the cave, which must have been nine yards broad, and of considerable height, with an arched roof. The floor of the cave consists of a mass of bones and flint flakes and chips cemented together into a hard stone, produced by the dripping of calcareous matter from the roof, and constituting what is usually called a 'bone-breccia,' the cementing substance being stalagmite or crystalline calcareous matter. It has evidently been a sea-cave, excavated at the bottom of a small cove or indentation in the cliff, and at a time when the sea was about 100 feet above its present level. Near the cave the cliff rises in a series of little terraces, on which grain had been sown; and over the top runs an old road or

track, which seems to have been that in use when the early Assyrian and Egyptian tablets were cut on the rock, as they are evidently related to the level of this, and not to that of the present road (Fig. 27).

Whether the roof of the cavern had fallen in before the Roman road was made is uncertain ; but it is clear that the floor of the cave was cut into in making the road, and at least the débris of its sides and roof used in forming the bank, as large masses both of the breccia and of the limestone rock lie on the slope, some of the latter holding characteristic Cretaceous corals, which

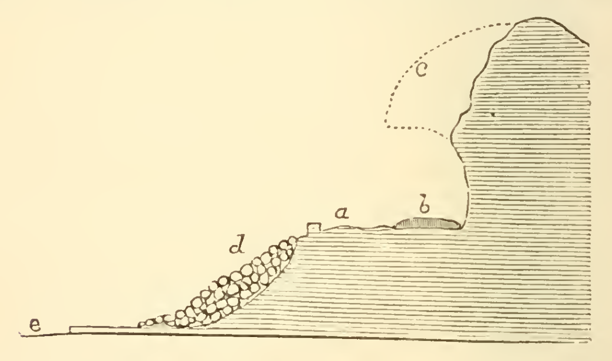


Fig. 27.—Section of Ruined Cavern at the Pass of the Nahr-el-Kelb.
a. Bed of road. *b*. Breccia of floor of cave. *c*. Probable ancient roof of cave. *d*. Débris thrown down in cutting the road. *e*. Level of sea.

belong to the soft bed in which the cave was originally excavated. A large slab of the bone-breccia, eight feet in length, now forms part of the parapet of the road, and would make a magnificent museum specimen. The exposed surfaces of the stalagmite, and the pieces on the bank, were filled with fragments of bone and with flint knives. A few teeth were also found, which indicate that the inhabitants had fed on the now extinct woolly

rhinoceros, on wild oxen, and on a species of deer allied to the modern fallow deer. A few of the bones bore evidence of having been charred by the action of fire, but these were exceptional, so that these people, if they did not consume their flesh raw, used some process of boiling or steaming. Search was also made in the little terraces near the cave, and a few flint flakes were found, but no other signs of human occupancy. On the flat top of the cliff, over which the old track runs, nothing was seen.

In the same cove with Tristram's cave, a little to the south and 35 feet higher in the bank, another, though smaller, cave exists, with its roof still entire. The floor of this cave is of soft earth, and in digging in it nothing was found. Near the mouth, however, was an oval bed made of stones, lined with green rushes, on which some one had slept within a few days, furnishing an example of the recent use of this cavern.

In the next adjoining cove, to the south-west of Tristram's cave, Dr. Bliss was so fortunate as to find the floor of a second cavern, still richer in remains than that of Tristram's cave, from which it is distant 210 paces along the road. Its roof is entirely gone, the material having apparently been for the most part removed to form the road, though some large blocks remain. The stalagmite floor is 10 paces broad, and in some places as much as 4 feet thick. It is somewhat softer, and of a more rusty colour than that in the other cave, but its contents in bones and flint knives appear to be similar.

Between the two caves the road passes round a point of rock concealing the one from the other, and commanding an extensive view of the coast from Beyrout to Tripoli. At this point are the remains

of a foundation of hard concrete, and near it a plain shaft of grey granite projecting from the parapet of the road, as if some monument had been erected, probably in Roman times, at this point. It is evident that when the caverns were entire, and before any road was cut around the cliff, their occupants would enjoy a position difficult of approach by enemies and commanding an extensive view along the coast. There would also be easy access to the shore and to the top of the cliff, and small terraces of ground capable of occupation and even of culture, and, in any case, of sustaining trees available for shelter and fuel. It is probable, however, that the geographical condition of the country was very different at the time of the occupancy of these caves from that prevailing at present. The woolly rhinoceros was an inhabitant of these regions in the Post-glacial or Second Continental period, when the eastern end of the Mediterranean presented much broader plains than at present, affording suitable haunts for this animal; and at that time the caverns may have been in the face of an inland cliff at some distance from the sea. No running water is known nearer than the river, but there are cavities in the rock which retain rain-water; and if at the time of the occupancy of the caverns the land was a little higher than now, the flat country found at other parts of the coast may have extended around this promontory, and there may have been springs at the foot of the cliff. The ledges of rock at the foot of these cliffs abound in limpets and other shell-fish, and at the time of my visit I saw boys engaged in collecting these. If the sea had been as near at the time of the occupation of the prehistoric caves, we should have expected that their inhabit-

ants would have availed themselves of this source of food, and that numbers of shells would have been found in their kitchen-middens. As this is not the case, we have an additional reason to suppose that the sea was then distant. If, at the period in question, the maritime plain of this coast was much wider than at present, this would have enabled herds of wild cattle and deer to migrate from north to south and to find suitable pasturage, and would also have afforded fit haunts for the rhinoceros. It is evident, however, that any such condition of the coast must have been anterior to the times of Phœnician history, and must, indeed, have belonged to that ancient palæocosmic or antediluvian age when the most ancient cave-deposits of Europe were formed.

It is also probable that the caves may have been occupied, occasionally, or at certain seasons, rather than continuously. The bones and knives are not merely covered with stalagmitic matter, but mixed with it, indicating that the deposit was in progress when these remains were being accumulated. This would also give evidence of a more moist climate than that prevailing at present, and probably a wooded condition of the country, such as that referred to in the descriptions of Lebanon in the Old Testament, and which must have continued from the earliest times till the hills were finally denuded of their trees by the agency of man. We may further infer that the ancient inhabitants of these caves were, like some of the hunter Indians of America, feeders on a few large animals then abundant in the country, and not addicted to the trapping or pursuit of small game.

Though it is possible that these caves may have remained intact until the cutting of the Roman road, it

seems more probable that their roofs were removed previously, and the appearance of the rock, along with the absence of any evidence of late residence, agrees with the character of the animal remains in indicating that their occupancy by man had been brought to a close anterior to the times of history, and possibly in the great submergence which closed the Second Continental or antediluvian period. There is, in any case, no evidence of any later occupancy than that by the early people whose débris is enclosed in the stalagmite.

I may remark here that the knives in these caves are

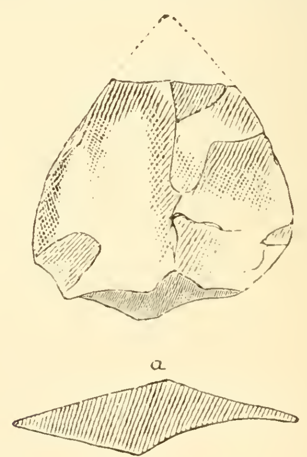


Fig. 28.—Arrow or spear, Nahr-el-Kelb. *a.* Section.

made of the flint found in the immediate vicinity, and that they differ in no respect from those of the later caves and rock shelters of this region, except in perhaps being a little broader and more massive (Figs. 28, 29). A few of the implements with rounded ends, known as 'scrapers,' were also found.

On the border of St. George's Bay, between these caves and Ant Elias, I observed, near the shore, and at no great elevation, a band of red loam and stones in which were a few similar flint flakes. The red earth in question

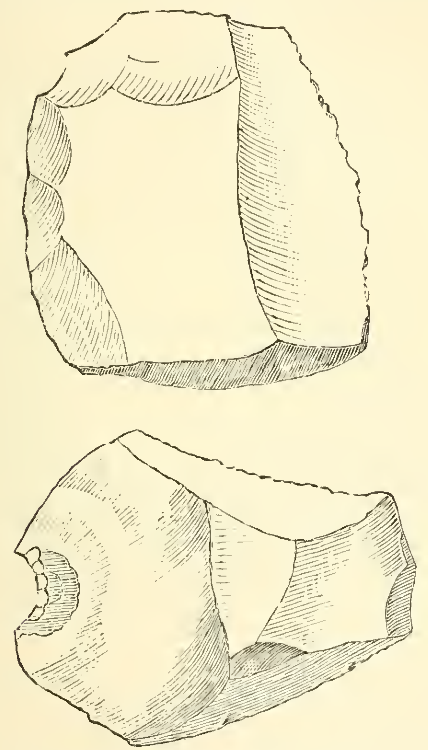


Fig. 29.—Fragment of knife and hollow scraper, Nahr-el-Kelb.

is a *remanié* deposit derived from the older red earth, to be noticed in the sequel, and which contains no stones or flints. The flakes contained in this *remanié* earth may have been washed out of old caverns, or from the

surface of the ground at higher levels; but probably at a period historically very ancient.

The stream of Ant Elias, between Nahr-el-Kelb and Beyrout, bubbles up from the bottom of a ravine, in front of a cavern, along which its waters are carried as in a tunnel. On the opposite or northern side of the valley, and a little higher up, is another cavern, with a high arched entrance, and about 50 feet above the bottom of the ravine (Fig. 30). On entering the cave, it is found to be a tunnel penetrating for about 50 yards



Fig. 30.—Entrance of Cavern, Ant Elias.

into the limestone rock, in the direction of north 60° east, and then turning off at right angles to its former course, the strike of the Cretaceous limestone being north 60° west, with dip to the south-west. Within, its floor is much encumbered with fallen blocks, but near the entrance it presents an earthen floor with only a few stones, some of them of large size. Against the sides are masses of stalagmite, some of which rise to a height of

6 feet above the floor, and at the mouth is a ridge of similar stalagmite, extending beyond the mouth of the cave, and indicating that the roof formerly projected farther than it does at present. On the side of the cliff there are also the remains of an old tunnel, long since cut away, and showing only a part of one side. The earthen floor of this cavern, which is quite loose and incoherent, is filled in places with flint knives, which are thinner and smaller than those of the Nahr-el-Kelb pass. With them are many bones, all broken to extract the marrow, and teeth of the wild goat, deer, and hog, and possibly also of the sheep. In short, the food of the inhabitants of this cave consisted of the modern animals of the country. Many of the bones are partially charred by fire, and there occur many shells of the large edible snail, and a few of sea snails. The stalagmite, so far as observed, does not differ in its contents from the earth, and may be of the same age and produced by local dripping partially hardening the deposit.

The cavern at Ant Elias is large enough to have accommodated a considerable tribe of ancient troglodytes, and the time during which it was so occupied need not have been very long, provided the occupants were numerous. The country at the time was no doubt wooded and well stocked with game, and the primitive people may have been prodigal of flint knives, as abundance of material for their manufacture exists in the neighbouring limestones. They may also, as it seems likely the Belgian people of the reindeer age were accustomed to do, have instituted *battues*, and made up quantities of pemmican or preserved meat for subsequent use with the flesh of the animals slaughtered.

Connected with the questions raised by the caverns, are

the flint flakes and implements found at the Ras of Beyrout, and I believe first noticed by Mr. Chester in his report to the Committee of the Palestine Exploration Fund.[1]

The oldest rock seen in passing from Beyrout around the point by the Lighthouse and Pigeon Island, is the Cretaceous limestone, which at this place is remarkably rich in large flint nodules. Upon the limestone rests a soft grey sandstone, used for building in the town, and containing in places fragments of recent shells. It is similar in its character to the modern sandstone of the Jaffa coast, and is, no doubt, of the same age. At one of the quarries a stratum of indurated deep red sand was seen to occur in the middle of the grey beds, and large sand-pipes, which traverse the grey beds perpendicularly, were filled with the same red sand, which also overlies the grey beds, and forms the surface of the highest part of the point, where it is more or less covered with loose wind-blown sand of a greyish colour. In one place, the lower grey sandstone was seen to be about 40 feet in thickness, and the red sand is in some places as much as 10 feet in thickness. The summit of these deposits rises as high as 250 feet above the sea-level. These sands are, probably, in great part products of the waste of the red and grey arenaceous beds of the lignitiferous zone of the Lebanon cretaceous, which occurs in the hills some distance behind. They belong to the modern or Pleistocene age, and to a time when the coast was submerged to the amount of 250 feet below its present level. At a place called the Bishop's Garden, behind Beyrout, and opposite the mouth of the ravine of the Beyrout river, there occurs a thick bed of grey and red

[1] Quarterly Statement.

conglomerate, capped with red sand, and which I believe to be a more inland representative of the coast deposit.

At the Ras of Beyrout the bed of red sand contains no stones or other foreign bodies, except near the surface, where it seems to have been disturbed and re-deposited by the action of the rain-water: but on its surface it holds small stones, fragments of coarse pottery, and even of glass, and flint flakes and implements, which are partly covered with blown sand. Among the stones I found fragments of vesicular trap, which may have been imported for millstones, and a small piece of Egyptian granite. All these bodies are mixed together, without anything to determine their relative ages, and they are most abundant at the surface of the red sand, and immediately under the drifted sand, or where it has been removed by the wind. The flint flakes are much whitened by weathering, and evidently of great antiquity, and with them are many large and irregular flakes, probably rejected as useless. A few spear and arrow heads have been found at this place. I found only one fragment of a lance or spear, but this had evidently been worked with some skill by pressure on the edges, in the manner now employed by the American Indians. A small flake of obsidian, with a rounded indentation at the edge, as if intended for use as a hollow scraper, was also found, and may indicate the importation of this material for the manufacture of implements.

The fact that these flint implements occur along with pottery and other city refuse, probably implies that they belong to the historic period; and the reason of their occurrence here may be that the place was occupied by native tribes who came to trade with or to attack the Phœnician colony; or that it was resorted to by such

people because of the abundance of good flint in the limestone near this place. The deposit might thus seem to connect the time of the foundation of the early Phœnician colony with that of the later flint folk. It is, however, possible that an older deposit of flints may have subsequently been buried with city refuse, which is still being carted out to this place; or, on the other hand, that the citizens of Berytus may have continued to use flint flakes and arrows at the same time with pottery, and when they were building edifices of stone.

A curious instance of this connection was mentioned to me by Mr. Sarruf, of the Beyrout College. He had found in a grave in the Lebanon lance-heads of bronze and copper along with flint flakes, thus showing the continued use of the latter after the natives had obtained weapons of bronze. On the other hand, Dr. Jessup, of the American Mission, has found, near Tyre, ancient tombs excavated in the bone-breccias of older prehistoric caverns.

Thus, in the Lebanon, we appear to have evidence of antediluvian or post-glacial cave-dwellers, belonging to the earliest known races of men, and of later troglodytes and flint people, who must have continued in the country till it was colonised by the Canaanites and Phœnicians, and who may have occupied the remoter glens of the mountains down to a comparatively recent time.

It is to be observed here that the present bare condition of these mountains must be quite different from their primitive state, when they must have been clothed with forests, and were probably inhabited by many kinds of game long since extinct. In this state, also, they would be much more abundantly watered than at present, and would possess a more equable, though on the whole cooler, climate.

It is also interesting to note the possible connection of at least the later cave-dwellers of the Lebanon with some of those primitive peoples referred to by Moses in the Book of Deuteronomy, as having inhabited Palestine before its colonisation by the Canaanites and Semites.

I have, in the preceding pages, endeavoured as clearly as possible to describe the facts connected with the Lebanon cave-deposits ; and it may now be useful to notice shortly some of the questions which they raise. It is plain, in the first place, that we have here, as in many other parts of the world, indications of prehistoric men of two distinct ages. The earlier of these we may call that of the woolly rhinoceros,[1] and the later that of the modern animals. In both cases the remains are such as to evidence a rude people living in caves, and using flint implements, and probably subsisting to a large extent by hunting. Yet we cannot certainly infer that the existing remains indicate all the culture of these times. The men of the older caves may have been contemporaneous with tribes living on the plains now submerged, and who had made higher advances in the arts of life. The cave men themselves must have been skilful hunters, acquainted with the use of fire, adepts in the art of chipping from flint cores those flakes, flat at one side and bevelled at the other, which served so many purposes to primitive man. They also knew how to execute that finer chipping of the end of flakes which produces round-ended scrapers, which must have been useful tools in many domestic arts. These people may

[1] *R. tichorhinus*. The men in the European caves who were the contemporaries of this animal are believed by Arcelin to be the earliest cave-dwellers hitherto discovered. *Comptes Rendus Congrès d'Anthropologie*, &c., 1882.

also have possessed for use in the finer seasons of the year other places of residence than caves, and may, during their sojourn on the plains and by the banks of rivers or the shore of the sea, have followed other modes of life than those indicated by their mountain shelters.

These men of the rhinoceros age are probably an extinct people. Like the animals on which they subsisted, they may have perished in that great diluvial cataclysm which closed the Second Continental period, and which we are now beginning to identify with the historical Deluge. In this case the country may have remained unoccupied for ages, and when men returned to it, it had become tenanted by the species of animals still living. The new people also, if we may judge from their implements, were more delicate manipulators of flint than their predecessors, and probably a less rugged and stalwart race, with more of art and less of vigour than the hunters who slew the great rhinoceros of the antediluvian plains. These were probably the aborigines whom the Phœnicians met when their ships first explored the coasts between Berytus and Tripoli, with whom they may have traded or fought for the possession of the country, and whose descendants not improbably constitute some of the varied tribes inhabiting the region at the present day.

In the Bible we have indications of these successive populations. The first would correspond with the rude tribes of its antediluvians, men of strength and stature, fitted to cope with the great quadrupeds that then abounded, but addicted to crimes of violence. The second tide of population represents those pre-Semitic peoples whom Moses mentions as existing in Palestine

before it was occupied by the more civilised races, whether Hamite or Semitic, that eventually possessed it. Thus the history of Lebanon, as represented in its caves, is, after all, only another version of the old stories so familiar to us in the Pentateuch.

The question of time is one not very certainly to be settled, either by the archæological or the historical evidence. The centuries that must have intervened between the Deluge and the Phœnician colonisation are sufficient for the altogether indeterminate history of the later cave men, inasmuch as no physical or biological change has taken place in the region since their advent. The time required for the physical changes, which seem to have removed the earlier race and the animals on which it subsisted, we have no means of measuring, all the geological data for the time occupied being of kinds which admit of very different interpretations in respect to this great factor, and the assertions of those who maintain the necessity of ages of vast duration for the changes involved being just as little susceptible of scientific proof as those of their opponents. This question therefore, like the dates of the earlier kings of Egypt, we must leave to the arbitrament of the discoveries of the future.



Seti I, King of Egypt, offering a statue of Ma, the Goddess of Truth, to Osiris. From the wall of a Temple at Abydos. (From a photograph.)

CHAPTER VII.

PAST, PRESENT, AND FUTURE.

THE world owes much to ancient Egypt, and perhaps if its debt were properly estimated there would be more tolerance of the debts and deficits of the poor down-trodden people who are the descendants of so great benefactors. Egypt has been the originator of many of the arts and sciences, or if not their originator, their preserver, in early historic times. Europe has learned here its earliest lessons of geometry, chemistry, medicine, architecture, and sculpture. We are beginning more and more to understand this, as we learn that much of the discovery in science and the arts heretofore attributed to the Greeks and to the Arabians existed long previously in Egyptian papyri. It is very wonderful to find in these ancient documents—some of them dating from the earliest dynasties—chemical facts, arithmetical formulæ, and medical recipes, almost in the identical forms in which they were copied by Greeks and Arabs, heretofore believed to be their authors. Independently of this we can discern in the great works of the early Egyptians more of knowledge, both of nature and of practical science, than we can gather from the scanty remains of their writings. Early Egyptian art has also in it the germs of all that has succeeded it. It is

impossible to examine the earliest sculptures preserved at Boulak without thinking, on the one hand, of that primitive prehistoric sculpture of which we have examples in the remains found in the earliest deposits of the caverns of Europe, and, on the other, of the later developments of European art. The sculptors of that early age in which the cave men lived were eminently accurate and realistic, giving us correct and spirited outlines of the forms of animals, and showing close observation of animal form and movement. The same characteristics appear in the early Egyptian works which have been preserved in the tombs of the kings and people of the 'old monarchy.'

In the Boulak Museum at Cairo is a wall-painting on stucco from a very early Egyptian tomb, probably of the fifth dynasty, and said to be the earliest painting extant, in which the characteristics of the old Egyptian art are well exemplified. It represents a flock of geese, apparently of two species, one of them being the Egyptian wild goose, called by the Greeks by the curious name 'Fox-goose,'[1] and which, because of its care for its young, became one of the sacred or venerated birds of Egypt. The outlines and attitudes of the animals are most natural, their plumage accurately tinted, and the artist might have been employed to-day to illustrate any pictorial book of natural history. In the same museum, and from a tomb of a scribe named Hosi of the fourth dynasty, are wooden panels carved with hieroglyphics, in which the delicacy and accuracy of the execution of animal and vegetable forms would do credit to an artist of any age. The portrait statues of this age are equally remarkable for truth to nature and freedom of style.

[1] *Chenalopex Egyptiacus.*

The wooden statue which the Arabs have named Sheik-el-beled from its resemblance to one of the head-men of the modern village of Sakkara, near which it was found, is a wonderful example of portraiture worked out of a piece of gnarled and knotty wood, and with its life-like quartz eyes, reproducing exactly the form and lineaments of a well-to-do Egyptian of the Abrahamic age. It is scarcely too much to say that this statue, and the marvellous figure of the 'sitting scribe' in the Louvre, perhaps equally ancient, have not been excelled as portrait figures in any subsequent age. In like manner in the ancient tomb of Ti at Sakkara, the family sepulchre of a landed proprietor of the earliest Egyptian age, we see all the domestic animals of the period—the horse and camel, as usual at that early date, being absent—beautifully sculptured in a great variety of attitudes, and the whole of the operations of the farmer and stock-raiser are graphically presented to us. In this realistic representation of nature it is safe to say that no people has excelled the ancient Egyptians who dwelt in peace in the Nile valley before the irruption of the Hyksôs.

The practical civilisation, culture, and taste implied in this, and in the absence of the grotesque and hideous from these early works, strike perhaps a naturalist more forcibly than an artist, and are certainly very wonderful. It is true, as I have already remarked, that in later times Egyptian art declined from its primitive perfection and became more stiff and conventional ; but such decadence has been witnessed elsewhere. In Egypt it may be attributed to two causes—first, the development of the power of the priests in connection with a rigidity of rule in the representation of sacred subjects ; and,

secondly, the demand, under the greater and more ambitious Pharaohs, for vast quantities of work, done in a mechanical and slipshod way, to satisfy the desire for quantity rather than quality. As an example of decadence of taste in connection with corruption of religion, we have in the Boulak Museum, exactly opposite the Sheik-el-beled, a hideously idealised erect hippopotamus of the time of Psammeticus I, and which was the sacred image of a shrine at Karnak of that comparatively late date. The contrast of these figures, belonging to periods more than 1000 years apart, should warn us against the too common error of supposing a continuous progress in art and practical civilisation, and on the other hand against that of identifying the beliefs and superstitions of widely separated ages of Egyptian history.

In the architecture of the Egyptians sóme features have not been followed by later races. The pyramid is one of these, and perhaps no people will ever endeavour to rival the structures of this class erected in Egypt. Justice has, however, scarcely been done to the grand geometrical simplicity which gives so great impressiveness and beauty to these buildings. I think it not unlikely that, should it ever be possible to erect for any practical purpose pyramids similar to those of Egypt, the artistic value of the pyramid would grow upon our minds and commend itself to our tastes. There are, however, as we learn from the account of Herodotus, to which Petrie has recently called attention, certain special peculiarities in the climatal conditions of Egypt which favour the erection of colossal buildings like the pyramids. For three months the inundation arrests nearly all agricultural labour, and during this time any king having

supplies of food to offer, could easily collect great levies of men to transport stones and to do the mechanical work of building. In this way a work like the building of a pyramid, extending over twenty years, might be a boon rather than a burden to the labouring population.

The obelisk is a creation of Egyptian taste which all nations have adopted, and which is perhaps the finest of all monumental forms, though it is but a development of the ideas embodied in the upright stone which the most primitive peoples have used for monumental purposes. One cannot fail to recognise in the grand and imposing propyla of Egyptian temples the predecessors of that lofty porch of the Temple of Solomon which has been a stumbling-block to architectural commentators, and of our own cathedral towers ; and in the pillared halls and porticos of these temples the originals of the noble Doric structures of Greece. In the details of internal decoration, examples of unsurpassed beauty are found in Egyptian temples, and many of them have come down to our own time without change, or could be imitated with the greatest advantage by modern decorators. The dados and friezes still extant in many of the Egyptian temples are often exquisite in taste and execution, and certainly far superior to the grotesque Japanese patterns so often seen with us.

So, in the ordinary arts of life, when we see the perfection of agriculture, cattle-breeding, carpentry, masonry, and other arts in the earlier periods of Egyptian history, we are impressed by the fact that the thought and invention implied in these things belong to these primitive people, and that their successors have been, in the main, unthinking imitators. Even the alphabet, which affords

us the means of expressing thought phonetically in writing, exists in its most primitive form in Egypt ; and though it was improved or rendered more simple and definite by the Phœnicians and Hebrews, it has since their time only suffered from unscientific treatment, till it has become the barbarous and unphonetic jumble which we are content to use in spelling English.

It was this country, so rich in art and culture, that was selected by the All-wise Disposer of events as the school for His chosen people, wherein, through prosperity and adversity, in power as rulers and downtrodden as serfs, they were trained for four hundred years ; and it was in the wisdom of the learned men of Egypt that Moses, the great lawgiver, not only for Israel but for the world, was trained in his earlier years. We derogate in no respect from the inspiration of Moses when we say that much of the literary and artistic fame of himself and his nation was derived from the Egyptians, and that the earlier books of the Bible, and the early art of the Hebrews as evidenced in their tabernacle, have a strongly marked Egyptian complexion. We may rather claim it as a characteristic of Divine Wisdom, that while the lower and more degrading features of the Egyptian idolatry, and the oppressive autocracy of their kingly and priestly system, were eliminated from the Hebrew laws, no unreasoning war was waged against things in themselves harmless or useful. It is true that Pharaoh was an inhuman oppressor, but his own people themselves suffered too much from the tyranny of his rule to take part against Israel. The Hebrews always notice throughout their history the distinction between the oppressive tyrant and the friendly people who remained behind, and whose descendants at this day suffer some of the bondage

from which the Hebrews escaped. I could not help thinking of the Hebrews when I saw gangs of hundreds of labourers, many of them mere boys, swarming like ants on the embankments of canals and roads, and carrying earth on their shoulders in baskets, whilst the taskmaster stood by with his stick or koorbash. This enforced labour is, no doubt, an equivalent for a certain amount of taxation, but, under the new *régime*, it should be managed more humanely. At a later time Egypt was the shelter of the Jews persecuted by Asiatic despots, and it afforded the means of reproducing their sacred writings in the most widely distributed and noblest language of the West. Still later it afforded a refuge to the Holy Family when the life of the infant Saviour was threatened by Herod. In this, as in the older history, the Divine Ruler might say, 'Out of Egypt have I called My Son.' Egypt early received the Gospel, and was one of the great centres of early Christianity, and it produced some of the greatest fathers of the Church, who have exercised a powerful influence in all later times. Even in its present enslaved and depressed condition, the study of its monuments and literature is one of the educational stimuli which affect the minds of European nations and tend to elevate our powers, while on the more gifted minds they create a fascination which it is difficult to resist.

The religion of ancient Egypt, as handed down to us by the remains of its literature, by its monuments, and by the testimony of visitors from abroad, while in many respects debased, and antagonistic to the purer faith of the Old Testament, yet retained more of the features of the patriarchal times than has usually been supposed. Its complexity, and the difference between the esoteric

doctrine of the learned priestly communities and the exoteric symbolism exhibited to the people, have perplexed enquirers from the time of Herodotus downward. They still furnish the material of very confused and contradictory explanations, in the midst of which it is necessary to proceed with some caution. Yet there are some leading features which are sufficiently plain, and which, with all deference to the conflicting views of Egyptological experts, I shall venture to state as they appeared to me in studying, from a naturalistic point of view, the sculptures of the Egyptian temples, and more especially those of the oldest date.

One of these is, that the religion of Egypt was increasing in complexity of forms and doctrines throughout its history, and that, in its later period at least, it aimed at being a comprehensive theology, uniting in itself all kinds of religious ideas. Monotheism, pantheism, polytheism, worship of ancestors, of animals, and of the heavenly bodies, are all commingled in it in various proportions, at least in the exoteric forms sculptured in the temples and tombs, and especially those of the later dynasties. Yet beneath all this we find in such documents as the Hymn to Ra, published in the *Records of the Past*, a substratum of pure monotheism.

Another salient point is the existence, behind all the puerile symbolism, of a definite moral aim, tending to social well-doing and order in this life, and having the sanction of a future judgment and reward or punishment in the life to come. This last doctrine was, however, in the more corrupt times prostituted to the love of money, and to the pretensions of an interested priesthood, prepared to grant absolution on certain terms even to the grossest sinners.

Accepting these as leading ideas, it is not difficult to perceive that the king of gods, Ra or Amun Ra, is the equivalent of Il or El, the supreme god of the Semitic races, and the Elohim of the Hebrew Scriptures, while Ptah, with his seven assistants, represents the Divine Word or Demiourgos and the creative days, and Kneph is the Divine Spirit moving on the primeval waters.

Beyond this trinity, we can distinguish, as a primitive goddess, Athor, the mother of all living, corresponding in this attribute, as well as in her connection with the cross and the crescent, to Ishtar or Astarte of the Asiatics, the mother of men, and the deified representative of the Biblical Eve or Isha, a goddess worshipped all over the world, even by the primitive tribes of North America,[1] and connected everywhere with the care of her children in the world of spirits. The triad of Osiris, Isis, and Horus, came next to Athor, and represents, in the contest with Typhon, the evil one, the victory of the seed of the woman over the seed of the serpent, and this united, as in the Biblical history, with the murder of Abel under a peculiar and mythical form. The promotion of Osiris to be the judge of the dead, and the prominence of this myth in the Egyptian religious system, arose from its embodying their version of the promise of a Redeemer, a promise which is the vital point in all religions that have any power. It would seem that Osiris, like the Hindoo Vishnou, had his Avatars, for some of the versions of his story seem to identify him with the early leader or leaders, the Mizraim of Moses, who first colonised the Nile valley after the Deluge.

[1] Atahensic of certain American tribes.

Khem, another of the great gods of Egypt, seems merely a gross form of the apotheosis of the Biblical Ham, the father of that branch of the human family to which the Egyptians belonged. The animal worship connected with that of the gods was apparently an attempt to illustrate their attributes and powers, a familiar use of animals as symbols among all peoples and in all times, and possibly as conspicuous to-day in the British Lion, or the Lions of St. Mark, as in any similar case in ancient Egypt. It had besides its justification in those symbolic cherubic forms preserved even in the Hebrew Scriptures, and of which the Egyptian sphinx was the principal representative among the latter people.

It is an instructive fact that this broad and comprehensive system of the Egyptian priests, in which every nation and people could see something of its own religion, had so little vitality, that, though by virtue of its higher moral sanctions and more elaborate ritual as compared with Western idolatry, it gained some ascendency over the human mind in the days of the heathen Roman empire, it succumbed at once to Christianity, just as this latter, after it had become debased by absorbing the myths and forms of the old paganism, gave way to the still simpler dogma of Islam. The lesson is, that comprehensiveness and breadth, gained by the sacrifice of truth and simplicity, are weak and helpless in the presence of sterner and simpler faiths.

The illustration at the beginning of this chapter is a tracing of a portion of a sculpture on one of the walls of a temple at Abydos, and which is supposed to have been the work of the great Theban artist Hi, a master of the peculiar style of the great nineteenth dynasty,

and who flourished in the reign of Seti I, in the generation immediately before that of Moses. It represents the king in the act of presenting to Osiris a miniature image of the goddess Ma, the divinity of truth and justice. She has on her head the ostrich feather, the symbol of purity, and holds in her hand the *crux ansata*, emblem of life. These, with her unbandaged eyes (for justice in Egypt as elsewhere was sometimes represented as blind), her kneeling attitude, and her position in the sacrificial bowl, are all religious mysteries representing the spiritual attitude of the king. Osiris is the great judge of the under-world, before whom king and slave must alike stand for condemnation or acquittal, and the king appears before him pleading the truth and justice of his motives, as represented by the kneeling goddess who acts as his mediator. The picture, like many others that one sees in Egypt, is an impressive revelation of the beliefs and feelings of men otherwise known to us only by a few of their public acts. These often appear to us most cruel and aggressive, yet perhaps, from the standpoint of men narrowly bigoted in favour of the traditions of Egypt and the customs based on them, they may have assumed a different complexion. We can easily imagine such men as regarding the slaying of enemies and the oppression of foreign and impure tribes as pleasing to the gods. This Seti, who thus appears before his god with professions of truth and purity, was a great devastator of Western Asia, and probably an oppressor of the Hebrews, though it was his son Rameses who carried this to its utmost limit. After all, his creed was not very dissimilar from that of the Pharisee, who loved his friends and hated his enemies, or, indeed, from that of many of the great men of later

days, who have been distinguished alike by beneficence to their own nation or party, and hostility to all others.

But the retribution for all this has long ago fallen on Egypt, and the descendants of that great race that made the valley of the Nile the seat of the highest civilisation of the ancient world have become servants of servants, and have fallen under the yoke of peoples who in the days of their forefathers were mere barbarians, and who at this day are at a lower social level than that of Egypt in the days of the Pharaohs.

Yet we cannot visit Egypt and study its modern people without seeing that there may be hope for them still, and that 'Jehovah shall return to Egypt, and they shall return to Jehovah, and He will be entreated of them and will heal them;'[1] a prophecy which no doubt had its partial fulfilment long ago, but which may have a greater and brighter one in the future.

The old artistic skill of the country still survives in its workmen, who, with wonderful dexterity, and often with what seem most insufficient tools, form the most beautiful objects in the precious metals and in textile fabrics. In its present architecture and decorative art there is also much to be admired. It is a touching as well as interesting sight to watch the skilful workers in precious things in the squalid bazaars of Cairo, and one wonders if they have worked on in this way all those thousands of years, and if in the olden time the cunning workmen whose artistic skill astonishes the world were as poorly paid and clad, and laboured in as mean workshops as their successors of to-day.

In the country also the agricultural fellah is an admir-

[1] Isaiah xix. 22.

able style of man. With good cerebral developments and much aptitude and intelligence, with an agile and muscular frame, he is a typical farm-labourer ; and as he patiently works his shadoof, or waters his fields with tiny rills of the water it has raised, or diligently weeds or hoes his crops, he presents an example of untiring industry and quaint yet ingenious contrivance. He has also a love of education, and desires that his children should learn all that can be taught in the schools to which he has access. He will often pay the village teacher what for him is a very large sum in exchange for a little education, and he is anxious when he can to take advantage of European schools. He reads too when he can get books, and loves to know something of the great world beyond him. The dweller in a mud hut, almost roofless and destitute of furniture, is often for his circumstances a somewhat intelligent and even learned man, and he is quick of apprehension and readily acquires or imitates anything brought under his notice by strangers. His family affections are strong, and his cheerfulness and good-nature are almost invincible. He is, it is true, deficient in some of the hardier virtues of more northern climates, and is less self-reliant and less truthful than he should be ; but it must be remembered that his race has suffered oppression from a period long antecedent to the rise of our modern nations.

The Egyptian must not be supposed to be represented by the rabble that howl for backsheesh at places frequented by travellers. No doubt backsheesh is an old institution of this country. Rameses the Great levied it unscrupulously on all his neighbours, and there may be reason to suspect that some part of the loan raised by the Israelites when they went out of Egypt

was of the same nature, though it may have been in the main for value received. But greedy vagrants and beggars exist more or less everywhere, and in Egypt the observant tourist can easily see the difference between these and the men and boys diligently watering and weeding their crops from morning to night, and the women busily employed in household work. Too often, however, all are treated alike by strangers and their employés, and it is frequently painful to see decent and orderly people plying some humble trade or offering some legitimate service involved in the same hard treatment which falls on idle beggars.

It is no doubt annoying to meet with the crowding and noisy competition that arise from a surplus of poorly-paid labour seeking employment; but this is no excuse for treating these poor people with harshness and contumely. It serves, however, to make one think of the patience of Jesus, and how He had compassion on similar noisy crowds, rudely pressing Him. I have often in my excursions in Egypt been worried with intrusion and importunity, and I fear have often been impatient, though I have endeavoured as far as possible to treat every one with kindness and justice. After all, when I think of the unwearying and cheerful attention of people so humble as donkey-boys and water-girls, of their unfailing good-temper, of their long and toilsome running over sand and stones for the most trifling pay, of their care of one in rough and dangerous places, of their earnest and often clever attempts to collect for me and otherwise to further the pursuits of the 'abu haggiara,' or 'father of stones,' as they call a geologist, whom I suppose they regard as a simple, idiotic sort of person, I am not sure that the balance of civility and

kindness should not be struck in favour of the Egyptian, and I feel bound therefore to say a good word for him. I may add that a gentleman whom I met at Jerusalem, and who has travelled much alone and unattended through the villages of the fellaheen in Syria, bears the same testimony in favour of them.

The Egyptian has of late borne a low reputation as a soldier. But even here he has scarcely had fair play. Torn from his village as a conscript, bewailed as dead by his friends, feeling himself a sort of outcast, subjected to drill altogether foreign to his habits, cramped in heavy boots and trousers, he labours under every sort of disadvantage. With bare feet and legs and a few cotton rags floating around him, he might be at least active and agile. Cramped in an imitation of European accoutrements, he droops into a spiritless laggard. Even Rameses of old is represented as fighting with bare arms and legs, and I feel confident he would have fled from the Hittites or dropped on his knees and begged for quarter, if he had gone into battle in the rig of a modern Egyptian infantry soldier. If soldiers were recruited in Egypt by enlistment, with adequate bounty and regular pay, and were clad in a light Zouave uniform, they might show some of the fighting qualities of their ancestors. But there is no doubt that the Egyptian is better suited to be a farmer than a soldier, and the policy which sends him to perish in vain attempts to conquer interior Africa is a mistake. He should conquer as an introducer of trade and civilisation, not as a soldier.

To enable him to do this, he requires at the present time some protection from without. He has been the prey of Mohammedan fatalism, a thing practically worse

than even the idolatrous superstitions of his forefathers; of Turkish misrule, of incompetent and avaricious office-holders, and of foreign money-lenders and extortioners. From these he cannot deliver himself unaided. It is true he retains so much of the power of patriarchal self-government as belongs to the village sheik and elders, but beyond this he has been accustomed to regard himself as the helpless slave of his ruler, whoever he might be. A different spirit will require time for its development. Perhaps by carefully nurturing the village municipalities and establishing more definite self-government in the cities and towns, the way might be prepared for a national legislature. In the meantime, however, there must be a paternal despotism, and the fellah will be content if he has security for his life and property, proper attention to the canals and similar works on which his irrigation depends, and some alleviation of the oppressive taxation under which he groans. The difficulties in doing even this much are great, and they are aggravated by the corruption of the official class and the want of confidence of the people in each other and their rulers. They are also aggravated by the unscrupulousness of many of the foreign residents, who regard Egyptians as made solely for their use and benefit, and are impatient of any means for their elevation unless their own pecuniary interests are promoted thereby.

The events which have been occurring in that great interior region on the upper waters of the Nile known as the Soudan are but the continuation of the history of those Cushite or Ethiopian populations of which its present inhabitants are largely the descendants, though with some Arab intermixture. These people have, since

the dawn of history, been alternately the victims of Egyptian spoliation and victors over their former tyrants. Sometimes they have been invaded by conquerors who have managed to overcome the great physical difficulties attending the access to their remote territory, and then in turn they have in despair or in wild retaliation poured themselves in desolating hordes on Egypt, and have even flowed over into Palestine. But lately, under the Mahdi, and maddened by religious fanaticism, they seemed to threaten not only to secure their independence but to give a new master to the Mussulman world. Defeated in this by British power, the question remains, Are they to be replaced in the slavery under which they have groaned since the last conquest of the country by the Egyptians?

It is interesting to note that the Hebrew prophets represent them very much as they appear to us now—a people of stature and of fine appearance, inhabiting a country desolated rather than enriched by its rivers, yet a great and powerful people difficult to subdue and dangerous to their enemies, but who in the latter day are to be given as 'a present to Jehovah of hosts.'[1] These Ethiopians were sometimes subjects of the Egyptian kings, sometimes conquerors of Egypt. On one memorable occasion in the reign of Asa they invaded Judea itself, but met with a total defeat in their attempt to penetrate the defiles of that country. The Assyrians after conquering Egypt only partially subdued them. The Persians under Cambyses attempted to invade their country, but were thankful to effect a retreat after

[1] Isaiah xviii. In that remarkable prophecy which begins, 'Ho, land of the double shadow' (that is tropical land) 'which borders the land of Cush.'

having to revert to the horrible expedient of cannibalism in order to preserve their lives; and though Ahasuerus claims to have reigned from India to Ethiopia, his empire can scarcely be said to have included either country.[1] The Ptolemies made little impression on them, and even in the times of the Roman empire they seem to have enjoyed a practical independence under the rule of their queens.

The relations of the African Cushites with the Hebrews date from an early period. Moses is said to have had a Cushite wife,[2] and no doubt there were many people of this race among the mixed multitude that followed the Hebrews in their exodus. At a later date Ebed-melech the Ethiopian, the friend of Jeremiah, stands out as a pattern of fidelity to God and kindness to His prophet, at a time when the Jews themselves were inhuman and faithless;[3] and a still later Ethiopian eunuch, the minister of Queen Candace, was one of the earliest and most eminent African converts to Christianity.[4] There can be little doubt that in early Christian times the Gospel had widely penetrated the Soudan, and Christianity still survives in Abyssinia.

The attempts in modern times to extend over the warlike population of the Soudan an Egyptian dominance, which to the Soudanese meant merely oppression and taxation without any adequate equivalent, were undoubtedly mistakes as well as crimes, and they were connected with the development of all the atrocities of the slave trade, which even the efforts of Gordon Pasha scarcely availed to suppress. But, on the other hand, it

[1] Esther i. 1.
[2] Numbers xii. 1.
[3] Jeremiah xxxviii. 7.
[4] Acts viii. 27.

is absolutely necessary to the commercial prosperity of Egypt, as well as to the civilisation and trade of the Soudan itself, and the progress of missions and education, that the avenues of commerce should be kept open. It would seem that in the present state of this unhappy country, only a firm and beneficent European rule can avail to ensure order, and to enable its people to hold profitable intercourse with the rest of the world, and above all to enable poor Ethiopia 'to stretch out her hands unto God,' in realisation of the prophecy of Israel's royal psalmist.[1]

This reminds us that the Bible has to do with the future of the East as well as with its past. I have spoken of the Egyptians as if they were one people, but they are really a mixture of very different races. Of these the Coptish, which most nearly approaches to the ancient civilised Egyptian, and represents also the old Egyptian Christianity, is perhaps that best fitted to take the lead ; and the Copts are now advancing towards this position by means of their educational efforts. These include large city schools, in which English is taught as well as Arabic. The Coptish population is said to number 300,000, and this estimate is perhaps under the truth. The very valuable and important work of the American Mission is largely among this race, and its indirect stimulus exists everywhere. The schools under the American Board are over fifty in number, with more than 4000 pupils, and their work and influence are daily extending. It is most important that this work has fallen into the hands of people so practical and so well skilled in the methods of teaching.

[1] Psalm lxviii. 31.

It is also most important that Americans, who are not mixed up with the political complications of Egypt, should have this work entrusted to them. It is better with them than under any other auspices. The American College at Beyrout, the press there, and the schools in Syria, represent a great power for the elevation of that people. Their work is felt in Egypt also, as they supply that country with trained teachers and wholesome literature. The friends of missions and of education in England would do well to support these enterprises of American Christians as eminently fitted to attain to the objects in view, and likely to do more good than any efforts emanating directly from Great Britain. Without the education of the Egyptian, and his higher moral training and introduction to European methods of thought, any attempt to introduce free institutions, or even important administrative reforms, will be like the mixture of iron with miry clay in the image of Daniel's vision, and will give no real strength, and have no permanent influence.

A great responsibility with reference to these matters rests on the British nation. It is true this has not been of our seeking, for there can be little doubt that the people of Great Britain have been earnestly desirous not to interfere in Egypt any further than was absolutely necessary. It is also true that opportunities have been lost and advantages neglected by the unwillingness of our Government to advance any further than it was compelled by circumstances. Still, the very fact that Divine Providence seems to have thrust this work upon us renders it more imperative that it should be satisfactorily completed. It seems quite certain that if Egypt is to be a free and happy country it must not

only be educated into capacity for self-government, but freed from interference on the part of the Turkish power and of the more aggressive foreign nations; and to effect this, time, patience, perseverance, and self-denial are all required. If to be effected at all, it seems to me that it must be by the joint efforts of English statesmen and American and English missionaries, to which I may add those of the Germans in Syria, and all this extended over many years. But if these efforts should be successful, not only will Egypt be restored to life, but the whole Eastern world will be quickened and brought back to its place in the onward march of civilisation and Christianity. Perhaps it is for some such end that the two great English-speaking nations have been drawn, without any concert and by events independent of their contrivance, into this work. That it may be so, every one who has seen anything of the Egyptian and Syrian people will devoutly pray, and will wish all success to these new Crusaders in their struggle, and will look forward to the time when all these peoples, from the hardy mountaineers of Lebanon to the dusky tribes of the Soudan, will rejoice in the possession of political and religious liberty. I place Syria and Egypt together, for I do not think they can be separated. The Arabic literature that emanates from Beyrout pervades Egypt as well as Syria, and every event that occurs in Egypt vibrates through Syria. If England and America are to reform Egypt, they must reform Syria as well; and they have to deal not only with the decaying Moslem power, but with the influence of those European nations which still, for political purposes, prostitute their power in upholding systems of priestcraft and shameful superstitions that disgrace the old sacred places of Palestine

and repress the efforts of the Christian populations to attain to higher culture and a better moral and spiritual position. With this great work is also connected the possible restoration of the Jewish people, who are now flocking into Palestine in unprecedented numbers, and if the time has really come for the turning back of the long captivity of these Eastern peoples, the way will be prepared, and the power of those who oppose will be broken down. God's mill grinds slowly, and the time may be longer than we could wish, but it may also be shortened ; and, in any case, the path is opened for whatever of educational and missionary activity Christians may be enabled to put forth.

This concluding chapter was written nearly three years ago, and many stirring and some tragical events have occurred in the interval. The gallant Gordon of whom so much was hoped, deserted like his Master by cold-hearted friends, was left to perish. The great expedition which failed to relieve him has nevertheless sufficed to break up the new empire of the Mahdi. Much has been done, despite the selfish opposition of France, to ameliorate the condition of the Egyptians; and there is hope that the protectorate of England may continue long enough to enable educated young Egypt to assert itself and eventually to regulate its own affairs. In the meantime the signs are multiplying which indicate that the fated 'times of the Gentiles,' when Islam and Antichrist are allowed to tread under foot the peoples of the East, are drawing to an end ; and that Egypt and Syria may hold up their heads in hope that their redemption draweth nigh. In prospect of such a consummation we may, with a higher appreciation of the sympathy between God and nature than that of the old

Egyptians, join in the rapturous invocation of the psalmist :—

> ' Let the heavens be glad and let the earth rejoice,
> Let the sea roar and the fulness thereof,
> Let the field exult and all that is therein ;
> Then shall all the forest trees sing for joy
> Before Jehovah, for He cometh,
> For He cometh to judge the earth ;
> He shall judge the world with righteousness,
> And the peoples with His truth.' [1]

[1] Psalm xcvi.

APPENDIX.

Dr. Kellog of Philadelphia, in his recent lectures on *Abraham, Joseph, and Moses*,[1] bases on recent discoveries in Egyptian monuments and papyri an ingenious correlation of the Hebrew and Egyptian chronology. He places the visit of Abraham to Egypt in the time of the Shepherd kings, the elevation of Joseph and the immigration of Jacob in the reign of Thothmes III or Amenophis III, and the Exodus not in the reign of Menephtah, but after his death, in a troubled time at the close of the nineteenth dynasty, when the death of the last ruler of that dynasty was accompanied, according to the Harris papyrus, by a great Exodus or emigration leading to a time of anarchy out of which the twentieth dynasty arose. This is but a slight modification of the views usually held, and it has much to commend it, more especially in the accurate manner in which it fits together the Hebrew and Egyptian histories.

[1] New York, 1887.

SOME OF THE PRINCIPAL BIBLICAL TOPICS ILLUSTRATED IN THIS WORK.



INDEX.



"This is one ... result of personal observation, ... The questions raised in this ... the most advanced knowledge and of large scientific ... time with great religious reverence."—*British Quarterly Review.*

"We know of nothing at all comparable to it as giving a succinct, clear, and constantly instructive account of the geological features of Egypt and Syria in their relations to the Bible, by the hand of a practised geologist."—*Record.*

7. **Assyria: Its Princes, Priests, and People.** By A. H. SAYCE, M.A., LL.D., author of "Fresh Light from Ancient Monuments," "Introduction to Ezra, Nehemiah, and Esther," &c. Illustrated. 3s. cloth boards.

"A little masterpiece. it presents with scientific accuracy, and yet in a thoroughly popular form, all that is of most essential significance in the realised information respecting that old-world history and life."—*Christian Leader.*

8. **The Dwellers by the Nile.** Chapters on the Life, Literature, History, and Customs of Ancient Egypt. By E. A. WALLIS BUDGE, M.A., Assistant in Department of Oriental Antiquities, British Museum. Crown 8vo., cloth boards. With many illustrations. 3s. cloth.

"A little book that contains a vast amount of information respecting that historic land, Egypt. . . . The history and explanation of the hieroglyphics and the discovery of their interpretation is lucidly and ably told."—*Times.*

9. **The Diseases of the Bible.** By Sir J. RISDON BENNETT, Ex-President of the Royal College of Physicians. 2s. 6d. cloth.

Sir Risdon Bennett has studied all the references in the Bible to diseases of various kinds in the light of the fullest and best knowledge of the present state of medical science. Such subjects as leprosy, demoniacal possession, etc., are carefully considered; and it cannot but be a great help to intelligent study of the Bible to have the latest scientific view of these and kindred subjects.

"We cannot too thoroughly commend this work, both on account of the subjects of which it treats, and for its intrinsic literary worth."
Provincial Medical Journal.

"An entertaining and instructive volume, written in simple untechnical language for the general reader."—*Christian World.*

10. **Trees and Plants of the Bible.** By W. H. GROSER, B.Sc. Illustrated. 3s. cloth boards.

"A useful little volume for Bible teachers and readers."—*Saturday Review.*

"Apart from its religious value, this little volume must approve itself to all lovers of botany."—*Times* (*Weekly Edition.*)

"There is no book on the subject which contains so much of the best information packed into so small a compass."—*Christian Leader.*

(OTHER VOLUMES ARE IN PREPARATION.)

BS
657
D32e
1892

Fo

"A useful little volume for Bible teachers and readers."—*Saturday Review.*

"Apart from its religious value, this little volume must approve itself to all lovers of botany."—*Times (Weekly Edition.)*

"There is no book on the subject which contains so much of the best information packed into so small a compass."—*Christian Leader.*

(OTHER VOLUMES ARE IN PREPARATION.)

	s.	d
TREES AND PLANTS OF THE BIBLE. By W. H. GROSER, B.Sc.	3	0
ANIMALS OF THE BIBLE. By H. CHICHESTER HART, B.A. ...	3	0
THE HITTITES. The Story of a Forgotten Empire. By A. H. SAYCE, LL.D.	2	6
THE TIMES OF ISAIAH AS ILLUSTRATED FROM CONTEMPORARY MONUMENTS. By A. H. SAYCE, LL.D. With a Map	2	0
MODERN DISCOVERIES ON THE SITE OF ANCIENT EPHESUS. By the late J. T. WOOD, F.S.A.	2	6
EARLY BIBLE SONGS. By A. H. DRYSDALE	2	6
THE RACES OF THE OLD TESTAMENT. By A. H. SAYCE, M.A., LL.D.	3	0
THE LIFE AND TIMES OF JOSEPH IN THE LIGHT OF EGYPTIAN LORE. By the Rev. H. G. TOMKINS	2	6

BY

BIBLE KNOWLEDGE.



THE RELIGIOUS TRACT SOCIETY.
56, PATERNOSTER ROW, LONDON.